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REPORT

ON

FOREIGN MANŒUVRES.

PREPARED BY THE GENERAL STAFF, WAR OFFICE.

1909.

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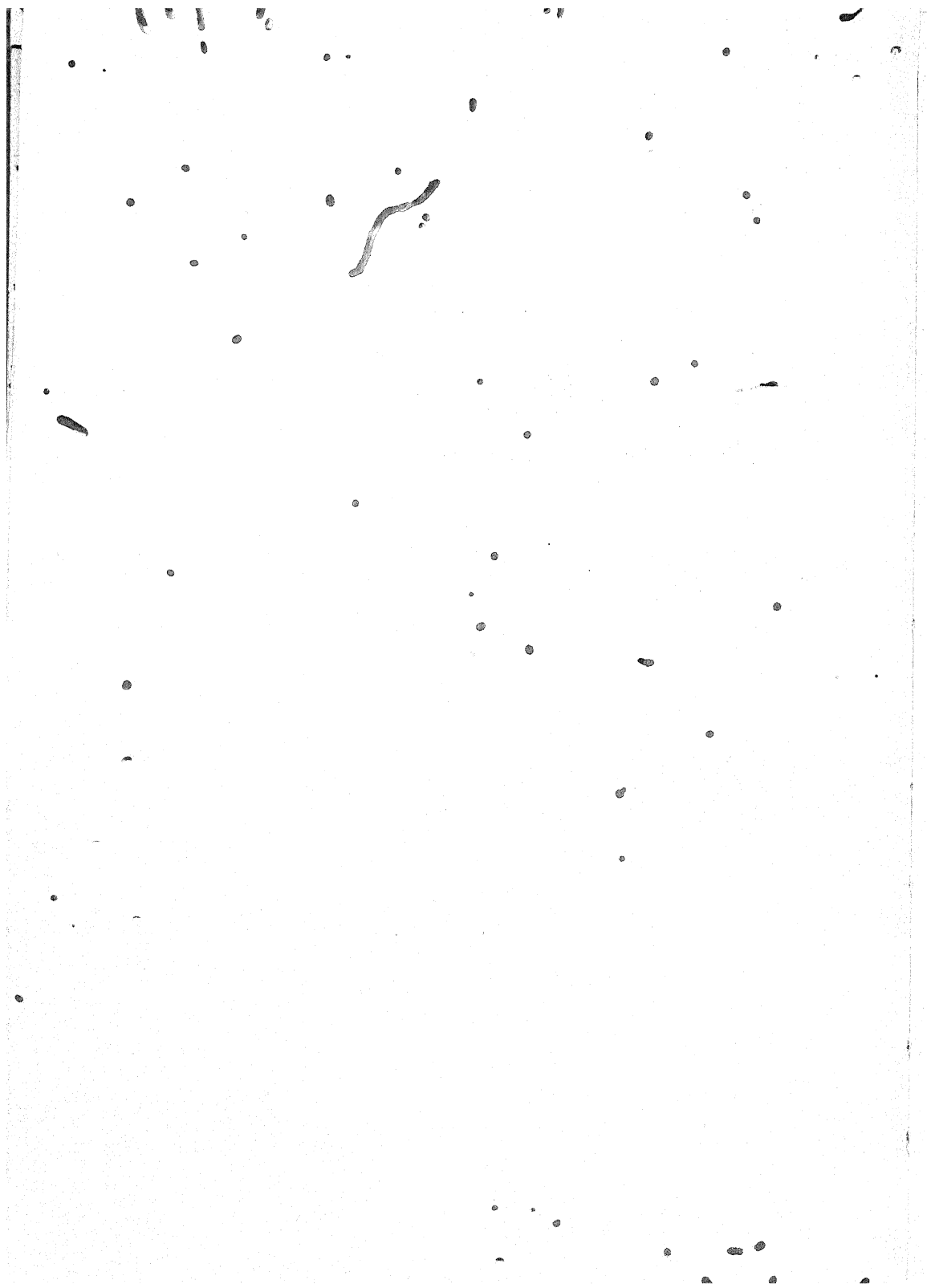
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INTRODUCTORY NOTE.

The reports on the foreign manœuvres held in 1909 bear witness to the general effort made to attain to conditions assimilating as far as possible those which would obtain in war. In most countries the manœuvres were continuous, but in France special permission had to be obtained for night operations, while in Italy a fixed daily halt from noon till 6 p.m. was ordained for all except supply services. The general opinion in France seems to be that outposts and night operations are better practised during regimental and brigade training than during the actual manœuvres. It may, moreover, be urged that if a state of war exists without break from the commencement to the end of the manœuvres, commanders are apt, in view of the shortness of the operations, to call on their men for extreme exertions such as could not with safety be required from them under similar conditions in actual warfare. In the manœuvres held in the United States of America, where the greater part of the troops engaged were drawn from the National Guard, a state of warfare existed from 5 a.m. to 1 p.m. daily, the authorities deeming it unwise to try untrained troops too highly.

The circular issued by the French War Minister calls attention to the disadvantage which operations organised on too large a scale have on the tactical instruction of the troops engaged (p. 49).

Attention is directed to the amendments to the instructions to umpires in the German Army, given on p. 93 of the "Report on Foreign Manœuvres, 1908," and to the arrangements for umpiring in the XIth German Army Corps (p. 93).

Features of interest as regards arrangements for umpiring are to be gathered from the reports on the Austrian and Japanese manœuvres; in the former country, the extensive telephone system by which the directing staff were kept informed of the progress of events (p. 5); in the latter country, the presence of umpires at the issue of orders with the object of ensuring that no orders, particularly as regards supply and transport, were given, which were likely to produce a situation not in accordance with the scheme of the Director of Manœuvres (p. 162).

The complicated system of reducing fire effect to mathematical expressions, which was tried in the French manœuvres of 1908 (*see* p. 37 of "Report on Foreign Manœuvres, 1908"), has been abandoned (p. 40), while the method of indicating by luminous discs which arm of an enemy is under artillery fire does not appear to have been successful (pp. 14, 28, and 40).

XIXth German Army Corps (pp. 90-92), and in the Japanese Manoeuvre Report (p. 164).

- Some very interesting remarks on the subject of the issue of orders and of staff work in the German Army are to be found on pp. 98 and 99.

The system of the occasional delegation of staff work to regimental officers in the Japanese Army appears noteworthy (p. 167).

Some detailed notes on the question of the assessment of compensation for damages are to be found in a report on the VIth Army Corps (German) Manœuvres (p. 95).

The spirit of the offensive so noticeable in the tactics of the French, German and Japanese armies is again commented upon this year. The danger arising in the final phases of a fight from a blind worship of the offensive at all costs is graphically described in a report on the manœuvres of the XIXth German Army Corps (p. 100).

A tendency is noted in the French Army to allow for an army corps a slightly greater frontage than has hitherto been considered safe (p. 42). Exaggerated extensions of front were also noticeable in the Austrian manœuvres. In the German Army, on the other hand, the principle is followed that every commander should keep his command collected and closed up under his hand as long as possible.

- While in the French Army great importance appears to be attached to the formation of a general reserve, the Japanese seem to prefer a comparatively small reserve in the defence and the early employment of every available man in the attack. The views held in the Japanese Army on the strength of the general reserve and on the employment of reserves in the counter-attack are stated on p. 168.

An example of a French infantry attack is given on p. 69, and a comparison is at the same time drawn between the attack as witnessed on that occasion and an attack delivered over similar ground by German infantry described on pp. 85-86 of "Report on Foreign Manœuvres for 1908." The various systems of the German infantry attack, quoted in various reports, are worthy of comparison (pp. 103-105). The procedure followed by the Japanese infantry in the attack and the general principle underlying it are to be found on pp. 169-171.

Details regarding the various systems of fire direction and control which obtain in foreign armies can be learnt on pp. 6, 7 and 8 (Austria-Hungary), pp. 44 and 71 (France), pp. 82 and 103 (Germany), p. 132 (Holland), p. 141 (Italy), p. 169 (Japan), p. 195 (Sweden), p. 190 (Russia).

The absence of entrenchments in the attack is generally reported, and but few instances of any such having been constructed were observed at any of the manœuvres.

A tendency is observed in the French Army to make the

the tactical unit. It is pointed out that this system makes considerable demands on the intelligence and training of the section leader.

An interesting account of some night operations is to be found in a report on the manoeuvres of the XIth German Army Corps (p. 101). Though, during the Japanese manoeuvres, there was a good deal of night marching, night attacks were never carried out, most of the attacks being delivered at dawn.

Attention is directed to the system of cavalry reconnaissance as followed by the Austrian cavalry (pp. 8 and 9). Each cavalry division was provided with a cyclist company about 100 strong.

Increasing attention appears to be paid in the French and German armies to dismounted cavalry work. The tendency of the German cavalry in this respect is discussed in an interesting report on the manoeuvres of the XIXth Army Corps (pp. 109-111). Both in the Russian and Japanese manoeuvres the cavalry constantly had recourse to dismounted tactics, and in the latter shock tactics were in no case observed.

Some notes on cavalry armament in connection with the new carbine and bayonet issued to the German cavalry and with regard to the unserviceability of the lance are interesting. The arming of the cavalry with a bayonet to fit into the carbine is also brought to notice in the report on the Japanese manoeuvres (p. 176).

Indirect fire seems to be employed by the artillery of the majority of nationalities whose manoeuvres were witnessed in preference to any other method. But it is noteworthy that the Japanese have practically abandoned the concealed position, except for heavy artillery, while with the Germans positions in the open or semi-concealed positions are the most popular; the prevailing idea being to push guns forward regardless of loss to support the infantry. It was observed that French batteries, usually occupied a position 50 to 100 yards in rear of the crest, the battery commander observing by standing on an up-ended wagon close to the guns. Both in the Japanese and French armies the exceptionally bright flash of the powder betrayed the position of otherwise well-concealed batteries.

Details regarding new patterns of artillery observation ladders are to be found on pp. 13, 14 and 117.

A dummy wooden shell used by the Italian artillery does not appear satisfactory; in some cases it did not break up at all, and as a result accidents nearly happened.

The opinions of the Japanese General Uéhara regarding the employment of machine guns are of interest (p. 182). It was observed that the Japanese seem to have laid greater stress than before in this year's manoeuvres on the value and importance of machine guns.

are to be found on pp. 121-123. A significant fact is the idea prevailing among German officers that machine guns would be useful in taking the place of artillery in a close country, especially if a campaign in such a country were fought overseas (p. 88). Both in the Austrian and French manœuvres machine guns were used in pairs, and no case of massing of machine-gun sections was observed. The question of the employment of machine guns with cavalry is not yet decided upon in the Russian army; in the Japanese manœuvres, on the other hand, a feature was the great use made of these weapons by the cavalry (p. 180).

The performances of the ill-fated French dirigible "La République," and of the German dirigible "Gross II.," are given on pp. 52 and 86 respectively. The French balloon accomplished a notable performance on September 17th (p. 53).

Interesting details in connection with billets, supply and transport in the German manœuvres are quoted on pp. 123-127.

The manner in which the sanitary reconnaissance of the manœuvre area is dealt with in France, and the medical arrangements generally for this year's manœuvres in that country, are given in an instructive medical report on the French Army Manœuvres (pp. 55 *et seq.*).

The careful inspection and disinfection of billets before their occupation by troops, as narrated in the Japanese Manœuvre Report, merits attention (p. 166).

Information is given regarding the following subjects of interest:—

The Hahn Rangefinder (Germany) (pp. 108 and 109).

Acetylene lamp and helio combined (Germany) (pp. 84 and 85).

The wireless telegraphy equipment used at the French manœuvres (pp. 50 and 51).

Travelling kitchens (Germany), p. 89; (Italy), p. 156.

AUSTRIA-HUNGARY.

PART I.—IMPERIAL MANŒUVRES.

These manœuvres took place in the neighbourhood of Gross Meseritsch in Moravia from the 8th to the 11th September, both dates inclusive.

STRENGTH AND COMPOSITION OF THE OPPOSING FORCES.

Northern Force (Red).

Commander :—General H.I. and R.H. the Archduke Eugen.

Ist Army Corps (General von Steinsberg) :—

12th Infantry Division.

46th (Landwehr)* Infantry Division.

Corps troops.

IXth Army Corps (General Rummer von Rummershof) :—

5th Infantry Division.

10th Infantry Division.

Corps troops.

7th Cavalry Division (Major General-Count Huyn).

The above units comprised 53 battalions with 17 infantry machine gun sections of two guns each, $37\frac{1}{2}$ squadrons with 1 cavalry machine gun section of four guns, 1 cyclist company, 3 horse, 16 field-gun, 8 field-howitzer and 3 heavy howitzer batteries, 4 pioneer companies, 2 bridging trains, 1 cavalry bridging train, 2 wireless telegraph stations, 4 infantry divisional, 1 cavalry divisional, 2 army corps and 1 army telegraph or telephone units, 1 field balloon detachment, and 4 infantry divisional and 1 cavalry divisional medical units. Total about 34,000 men.

Southern Force (Blue).

Commander :—General Ritter Versbach von Hadamar.

IInd Army Corps :—

4th Infantry Division.

25th Infantry Division.

13th (Landwehr) Infantry Division.

Corps troops.

* The Austrian Landwehr and its Hungarian counterpart, the *Honved*, are the respective standing armies of Austria and Hungary individually, in contradistinction to the "common" army (*Gemeinsames Heer*), which is the standing army of the Austro-Hungarian Monarchy collectively.—(General Staff.)

3rd Cavalry Division (Lt.-Gen. H.I. and R.H. the Archduke Franz Salvator).

The above units comprised 41 battalions with 25 infantry machine gun sections of two guns each, 35½ squadrons with a cavalry machine gun section of four guns, 1 cyclist company, 3 horse, 12 field-gun, 6 field-howitzer and 3 heavy howitzer batteries, 3 pioneer companies, 2 bridging trains, 1 cavalry bridging train, 2 wireless telegraph stations, 3 infantry divisional, 1 cavalry divisional and 1 army corps telegraph or telephone units, 1 field balloon detachment, and 3 infantry divisional and 1 cavalry divisional medical units. Total about 26,000 men.

COUNTRY.

The north-western portion of Moravia is admirably suited for manœuvre purposes. Though devoid of any very prominent hill features, the whole country presents a series of gently undulating ridges, the general trend of which is north-west and south-east, though without any down-like regularity. Upwards of a quarter of the total area is covered with pine woods, and the remainder consists of rough grass, stubble and potato fields, bounded only by small "grips." These latter constitute no obstacle, but in places the movement of formed bodies of mounted troops is somewhat hampered by the numerous granite boulders with which the surface of the ground is strewn.

The communications are excellent, the whole neighbourhood being intersected by a network of good 2nd class roads, connecting the villages and hamlets which are dotted about in every direction. The Oslawa and Iglawa, two small rivers which traverse the country, are bridged at numerous points, but even if this were not so, they are not of sufficient size to constitute serious obstacles.

NATURE OF THE OPERATIONS.

The manœuvres were based upon the following general idea:—

The 4th Red Army has invaded Moravia from the north-east and has received orders to advance so as to co-operate with the 1st and 2nd Armies (imaginary) which have invaded Bohemia from the north.

The Blue forces are in the process of concentrating in the south of Bohemia. The IInd Blue Army Corps and the 3rd Blue Cavalry Division have been pushed forward into Moravia to cover the detrainment of the IIIrd Blue Army Corps (imaginary). The Blue concentration is to be completed on the 10th September.

On the morning of the 8th September the G.O.C. 4th Red Army receives orders to act vigorously against the Blue right, so as to impede the concentration and compel the Blue commander to detrain his troops as far south as possible.

At the same time the G.O.C. IInd Blue Army Corps receives orders to oppose the advance of the Red forces through Moravia.

During the night of the 7th-8th the Blue and Red forces have, after arduous marches, reached the following positions:—

The IInd Blue Army Corps—concentrated—about 20 miles south of Gross Meseritsch, with the 3rd Blue Cavalry Division immediately on its right flank; the IXth Red Army Corps about 4 miles north of Gross Meseritsch; the Ist Red Army Corps about 25 miles north-east of Gross Meseritsch; and the 7th Red Cavalry Division about 18 miles east of the same town.

The 8th September was devoted exclusively to reconnaissance, the bulk of the opposing forces remaining—by order of the Director of the Manœuvres—in the above positions.

On the 9th September a collision took place between the bulk of the three Blue divisions and the two divisions of the IXth Red Army Corps, the latter being repulsed. On the 10th September the G.O.C. Blue left a small force to observe the defeated IXth Red Army Corps, and turned the whole of the remainder of his force north-east against the Ist Red Army Corps. During this operation, however, the IXth Red Army Corps, which for purposes of instruction had been somewhat prematurely restored to life, made a fresh advance and threatened to envelope the Blue left. In consequence of this movement Blue was compelled to renounce the offensive, and to fall back to a defensive position some 10 miles south of Gros Meseritsch.

The manœuvres were brought to a close on the morning of the 11th September by an attack upon this position by the whole of the Red forces.

METHOD OF CONDUCTING THE MANŒUVRES.

General Methods.—The system of “free manœuvres,” which was inaugurated by the Chief of the General Staff two years ago, was again followed this year. The attainment of conditions as nearly as possible similar to those which obtain on service was striven after from first to last, and no attempt was made to produce a “spectacle” in any shape or form. From the hour at which the manœuvres commenced until the “cease fire” at their conclusion, the “state of war” continued without interruption, the commanders of the opposing forces being left an entirely free hand, subject only to the decisions of the umpires—who were intended to replace the bullets in actual warfare.

• While the soundness of this system was generally accepted, it was considered open to the objection that commanders, knowing full well that the “cease fire” will sound at a given

hour on a given day, and that the troops will then have an opportunity for a thorough rest, are apt to call upon their men to make extreme exertions, such as could not with safety be required from them under similar conditions in the midst of all the uncertainties of actual warfare. For example, one infantry division is reported to have marched from 40 to 44 miles between 4 a.m. on the 9th and 4 a.m. on the 10th September, a performance which, though fine in itself and highly creditable to the troops, would probably have led to disaster under similar conditions in war.

Umpires.—The umpiring was very efficiently carried out in accordance with the instructions contained in paras. 221–256 of the new “Vorschrift für die Truppenübungen des k.u.k. Heeres.” No supplementary instructions for the guidance of the umpire staff were issued.

The number of senior officers detailed for duty as umpires was somewhat remarkable. The actual numbers were as follows:—

- 9 lieutenant-generals,
- 17 major-generals,
- 22 colonels,
- 3 lieutenant-colonels,
- 5 majors.

In addition to these, a number of General Staff Officers and students at the Staff College were attached to the umpire staff, the latter as orderly officers to the umpires.

Previous to the manoeuvres, all the umpires were told off to the various army, army corps, divisional and brigade staffs which they were to accompany throughout the operations, such staffs being required to make the necessary arrangements for their accommodation and rations, and to provide them with orderlies. Consequently there were no separate umpires' messes.

In addition to the umpire staff, there was a smaller staff of reporting officers who were distributed among the various staffs from brigades upwards. The duties of these officers were to keep the directing staff “*au courant*” with all orders issued by the staffs to which they were attached, and with the course of the operations in their vicinities. They were also intended to supply the umpires with similar information in so far as it might be required. The reporting officers performed no umpire duty, but their existence did not relieve the umpire staff from the duty of recording and reporting to the directing staff the events which came under their notice.

With a view to enabling the directing staff to be kept posted as regards the progress of events in various portions of the field, a special and somewhat elaborate system of telephonic communication was established throughout the theatre of operations. This system was entirely independent of the telephone and

* “Manœuvre and Training Regulations.”—(General Staff.)

telegraph lines laid out by the opposing forces, and was, of course, regarded as neutral.

The system consisted, at the commencement of the operations, of three trunk lines radiating from the headquarters of the directing staff. All the principal umpires and the reporting officers were provided with cavalry telegraph patrols, by means of which they were able to connect themselves up with any convenient point in the above-mentioned trunk lines. Thus an intricate network of lines was built up throughout the theatre of operations. As the centres of interest shifted or the position of the headquarters of the directing staff was changed, the trunk lines were modified, sections which had become superfluous being removed, and new lines being laid as required. These operations were usually carried out during the night.

As might be expected, somewhat impossible situations arose from time to time during the course of the operations, but situations of this nature were remarkably few in number, and when they did arise, were speedily rectified by the umpire staff who simply ordered the withdrawal of one side and checked the advance of the other.

No individual casualties were made, and, so far as could be ascertained, no infantry units were put out of action even temporarily. Cavalry units, on the other hand, were dealt with more summarily, one whole cavalry division (*see* page 10) being put out of action on the 10th September for the remainder of the manœuvres.

REMARKS.

Staff.—The staff work appeared on the whole to be good. The General Staff gives the impression of being a body of capable though perhaps not brilliant officers who take their profession seriously, are well trained and pull well together.

Only one order—that from a corps commander to one of his divisional generals, ordering the division to attack—was actually seen in its original form. This order was clear and concise, and was put into execution with remarkable rapidity. It appears that the telephone is largely made use of for the communication of orders, even when they are of a highly important nature. No cases of mistakes due to this procedure came to notice.

Infantry.—A considerable difference was noticeable between the various regiments as regards the physique of the men. Generally speaking, the units of the 1st (Cracow) Army Corps produced a less favourable impression than those of the IInd (Vienna) and IXth (Leitmeritz) Army Corps. On the whole, however, the physical standard—though certainly not high—does not appear to be unduly low.

The standard of efficiency in the Landwehr regiments appears to be in no way inferior to that in the regiments of the

"common" army, in spite of the fact that the term of colour service is two years in the former as against three years in the latter units.

Companies were raised by means of reservists to an establishment of 130 men (normal peace establishment, 93; war establishment, 260 men).

In spite of the fact that there were thus nearly 30 per cent. of reservists in the ranks, the marching powers of the infantry were excellent. The men of the 25th Infantry Division, the division which, as mentioned above, covered a distance of at least 40 miles within twenty-four hours, were certainly thoroughly tired at the end of their march and were not in a fit state to take their place in the fighting line—as, in fact, they were called upon to do—but they could not be described as being completely exhausted. No authentic figures are available as to the number of men who fell out during this march, but the number is believed not to have been excessive, and it is certain that very few stragglers were to be seen throughout the manoeuvres.

The infantry had evidently been well trained in the use of ground and took every advantage of the excellent natural cover which was available in many parts of the manoeuvre area. Comparatively little use was made, however, of artificial cover, and when the troops were ordered to entrench themselves the work was usually carried out in a somewhat perfunctory manner. No cases were observed of infantry attempting to entrench themselves during the attack.

The method of carrying out an infantry attack is not governed by any hard-and-fast rules. Everything depends upon the circumstances of the particular case. The following appear, however, to be some of the principles regarding formations and fire in the attack :—

In the first place, it appears to be accepted that an advance under fire can only be carried out in extended formation. Consequently all infantry units, irrespective of the particular rôle which may have been allotted to them in the attack, adopt such a formation as soon as they come under the enemy's fire. The distance from the enemy at which they thus extend is governed solely by the ground and by the enemy's fire, and not by any fixed rule. The degree of extension is also dependent upon the intensity of the enemy's fire.

Similarly, the distance from the enemy at which fire should be opened is dependent upon circumstances, the principle followed being that the opening of fire should be delayed as long as possible, *i.e.*, until the losses which are being incurred render it necessary to reply to the enemy's fire. Infantry endeavour, whenever practicable, to get within effective range before opening fire.

Fire once opened, the firing line is built up to the required density by a succession of extended lines, pushed forward one after the other.

No cases were observed during the manœuvres of men being closed up when cover was reached during an attack, with the object of getting them into hand.

As regards "rushes" in the attack, the principle appears to be that they should be made by the largest bodies possible, *e.g.*, by a whole company, in the earlier stages of the advance. It is recognised, however, that, as the difficulties of the advance increase, the number of men pushed forward in a single "rush" would of necessity have to be reduced, until at last recourse may have to be had to a man-by-man advance.

As regards the rate of fire, there is no word of command corresponding to our "rapid fire." The only recognised methods of fire are "individual fire" and "volleys." The former is that usually employed, the latter being made use of only by sections in close formation, or occasionally for ranging purposes by extended sections or half sections. No cases of volley-firing were observed during the manœuvres.

No definite rate of fire appears to be aimed at in "individual fire," but stress is laid on the fact that deliberately aimed fire produces a proportionately greater effect than rapid fire. The rate of fire is controlled by the various commanders in the firing line by means of orders such as: "slow," "very slow," "more rapid." The regulations lay down that the rate of fire should be increased—

- (a) In the attack, in order to establish a definite superiority of fire from a fire position occupied within decisive range;
- (b) In the defence, to repulse the enemy's attack when it reaches close ranges;
- (c) When an enemy has been repulsed, in order to inflict the greatest possible losses upon him as long as he is within effective range;
- (d) When the enemy has been taken by surprise, or when the enemy is met with unexpectedly.

The magazine rifle M. 95 is sighted up to 2,600 paces. The backsight consists of a hinged leaf, on which works a slide. The side of the leaf is graduated in *even* hundreds of paces from 600 to 2,400. The slide can be set exactly to any of these graduations, but *odd* hundreds of paces must be judged by eye. For ranges of 300 and 2,600 paces special V's are provided, the former in the bottom of the "window" in the leaf and the latter in the upper edge of the leaf. The "fixed sight" V is cut in the upper surface of the base of the leaf in its folded-down position. It is graduated "500 paces," and is known as the "normal sight." On ceasing fire the sight is always put back to the "normal" position, and when opening fire the "normal sight" is always used unless any other is.

ordered. The maximum height of the trajectory at 500 paces is 78 m. (31 inches); that at 300 paces is 28 m. (11 inches). The musketry regulations lay down that in the event of troops being surprised, or of their being attacked by cavalry, the "normal sight" is always to be used up to 600 paces.

As in the attack, so also in the defence, there is no fixed rule as to the range at which fire should be opened. The principle followed in this matter appears to be that fire should not be opened until the enemy presents a target against which fire is likely to prove effective.

Firing during movement is prohibited by regulation.

The "Roksandic" range-finder is still the service instrument for the infantry, but infantry officers generally appear to have very little faith in it, and it was never once seen in use during the manœuvres.

In the absence of mounted infantry, recourse was had on at least two occasions during the manœuvres to the expedient of pushing forward small bodies of ordinary infantry in country carts.

Cavalry.—There was no opportunity for a personal view of the working of the cavalry during the manœuvres. Certain details as to the reconnaissance on the 8th September were, however, published officially, and it is therefore possible to give a general sketch of the dispositions made by the opposing commanders.

Prior to the commencement of the operations an arbitrary zone, roughly 10 miles in width, had been fixed about half-way between the opposing forces. No man of either force was allowed to enter this zone before 8 a.m. on the 8th September—the "rest-day" which was to be devoted to reconnaissance—and even then only single squadrons or companies (accompanied if necessary by cyclists or machine guns) were allowed to enter it. All restrictions regarding entry into the zone were removed at midnight on the 8th–9th September.

At the time when he made his dispositions for the reconnaissance, the Blue commander was in the possession of information that bodies of hostile troops which were advancing towards him had reached points about 45 miles to the north by east and 50 miles to the north-east of the position of his corps, and he had received orders to advance against these hostile columns. He accordingly divided the area in the direction of the enemy into one broad and three narrow sections (total width about 40 miles) to be reconnoitred respectively by his cavalry division and by the divisional cavalry of his three infantry divisions.

His orders provided that the reconnaissance should be carried on the 8th September as far as a line about 40 miles distant from his main body, and on the 9th September to a line about 12 miles further forward.

The only troops detailed to take part in the reconnaissance, exclusive of some small infantry detachments pushed forward to secure certain bridges in the probable line of advance, were :—

- Nine officers' patrols.
- Three reconnoitring squadrons.
- Seven infantry reconnaissance detachments.
- One company of cyclists.

The exact route to be followed by each of the above bodies was indicated in a map which was issued with the orders.

The nine officers' patrol were told off to advance on approximately parallel and equidistant lines, covering a front of about 25 miles, and the reconnoitring squadrons were pushed forward on parallel lines about 7 miles apart, the route told off for the left reconnoitring squadron slightly overlapping that told off for the right officers' patrol.

The seven infantry reconnoitring detachments—each of the strength of one company—were ordered to advance by approximately parallel and equidistant routes covering a front of about 24 miles in the centre of the sections to be reconnoitred. They were transported in carts for the first 10 or 15 miles of their advance.

The cyclist company was ordered to advance on a point approximately in the centre of the section allotted to the cavalry division.

The Red reconnaissance was carried out on a somewhat different system. The Red commander simply divided the area to be reconnoitred into two sections, about 25 and 15 miles in width respectively, and allotted one—the wider—to his cavalry division and the other to his most advanced army corps. He left his subordinate commanders entirely free as to the detailed measures to be adopted.

The troops actually employed in carrying out the reconnaissance were as follows :—

By the cavalry division :—

3 reconnoitring squadrons.

2 officers' patrols.

(Also 1 cyclist company and 1 squadron to seize important points.)

By the army corps :—

3 reconnoitring detachments, each of 1 company and $\frac{1}{2}$ squadron.

1 reconnoitring detachment of 1 company and a composite cyclist section.

1 officers' patrol.

(Also a few small detachments to seize important points.)

It may be mentioned that while the Blue reconnaissance was not considered altogether satisfactory, no criticisms were heard with regard to the results obtained by Red.

Several instances occurred of cavalry being used dismounted but no details of such action are available. The roughness of the ground restricted the use of shock action in some parts of the manœuvre area, but the tendency is evidently to regard shock action as the normal and dismounted action as quite the exceptional method of employing cavalry.

It has already been mentioned that on the 10th September a whole cavalry division was put out of action for the remainder of the manœuvres. The unit in question was the 3rd Cavalry Division, commanded by Lieut.-General H.I. and R.H. the Archduke Franz Salvator.

No little reticence was observed by the authorities with regard to the details of the events which led to this disaster, but, so far as could be ascertained, the division in question, after very arduous work throughout the day of the 9th and the greater part of the night of the 9th-10th September, was ordered on the 10th to operate against the right (western) flank of the 1st Red Army Corps with a view to preventing a junction between it and the IXth Red Army Corps. The cavalry division was unsuccessful in preventing this junction, and when towards nightfall the two corps joined lands, it was squeezed out in rear of the Red forces and was thus completely cut off from the Blue army and from its own transport. The situation in which the division thus found itself might not have been an unfavourable one for enterprises against the enemy's rear, had the men and horses been fit for further work, but it appears that both were by this time nearly exhausted, with the result that the Archduke Franz Salvator decided to bivouac close in rear of the enemy's troops. In this position the division was surrounded during the night by Red infantry and machine guns, and it was consequently ruled by the umpires to have been completely annihilated.

It may be mentioned that during the same night the horses of four squadrons of the 6th Dragoons—one of the regiments belonging to the 3rd Red Cavalry Division—took fright, probably at the flash of a searchlight, and stampeded. On the following morning about 90 of the horses were still missing. A few men are reported to have been slightly injured during the stampede, and several horses received such serious injuries that they had to be destroyed. This is believed to have been the third stampede of horses which has occurred in Austria-Hungary this year.*

Cavalry are not equipped with visual signalling apparatus of any kind. Each regiment has a telegraph patrol, consisting of four sergeants and four men and equipped with a field telegraph apparatus and eight miles of wire. Each telegraph patrol has also a "tapper" which can be attached to any existing

* Horses are secured ordinarily by heel shackles, with head-rope and peg.—(General Staff.)

civil telegraph or telephone wire, and by means of which telegraphic or telephonic messages can be sent without disturbing the ordinary communication along the line.

• All the cavalry which were seen were well mounted; the men rode well, and the horses were in good condition.

Artillery.—While the field-howitzer regiments are still armed with the somewhat old-fashioned M. 99 equipment, the field-gun regiments appeared at manœuvres for the first time with their new Q.F. equipment, the issue of which has recently been completed. This new equipment appears to give entire satisfaction, though it possesses two seemingly grave defects, viz., the absence of “independent line of sight” and of an automatic fuze-setting machine. It remains also to be seen whether the forged bronze used for the construction of the guns will fulfil the expectations of the authorities, who claim that this material is markedly superior to steel in durability.

With the introduction of the new equipment has come a revolution in the method of employment of the artillery. There has suddenly arisen an excessive desire for the occupation of concealed positions—excessive because such positions are taken up in season and out of season.

At the best of times the Austro-Hungarian army is under-artilleried, each infantry division (consisting of some 14 to 16 battalions) having only four field-gun and two field-howitzer batteries, each of six guns, *i.e.*, 36 guns in all. It is true that each field-gun regiment forms on mobilization one reserve and one *Ersatz** battery in addition to the four service batteries which exist in peace; but even assuming that these batteries would not be required elsewhere and would therefore be available to take the field with the infantry divisions to which they belonged, the number of guns per division would only be 48 (*cf.* our 72 field guns and field howitzers for a division of 12 battalions).

In view of this small proportion of guns it seems more than ever necessary that such artillery as exists should be utilised to the utmost possible advantage; held back however as it is at present in concealed positions upon most occasions, it appears impossible for it to give effectual support to the infantry, at any rate in the later stages of an action. In this connection it may be mentioned that there appears to be no system of communication whatever between the artillery and the infantry, the telephones with which the batteries have recently been provided being used exclusively for connecting the batteries with their observing stations, &c., while the visual signalling apparatus with which both artillery and infantry are equipped was never once seen in use throughout the manœuvres.

* *Depôt* or *Cadre* battery.—(General Staff.)

It is probable that the very frequent use of concealed positions observable during the manœuvres is only a passing phase, and that more moderate views as to the uses and abuses of such positions will soon obtain.

It may be mentioned that the new Q.F. guns are fitted with panoramic sights which render aiming posts superfluous and greatly facilitate the operation of laying for direction.

The artillery is at present practically without a range-finder. Two different patterns are under trial, viz., the "Erle" and the "Barr and Stroud," but, so far as could be learnt, no decision has yet been arrived at as to which, if either, is to be adopted. The former appears to possess all the usual shortcomings of a two-man instrument, while it is believed that the latter has been found to get out of adjustment owing to the wear and tear of field use. Upon the only occasion on which close approach to a battery was practicable, it was found that there was but one range-finder—of the "Erle" pattern—for the whole regiment, and that was with the regimental staff and not with the battery in question.

Each field-gun and field-howitzer battery was accompanied by a store wagon (*Gerätewagen*). This is a limbered vehicle, the limber of which is fitted to carry two reserve rations of biscuit, coffee, &c., for the whole battery, and a few small stores. The wagon body, which is considerably longer than that of an ordinary ammunition wagon, carries the material for a light bridge (*Wurfbrücke*). This bridge, the invention of a Captain Heinrich Viktorin, is intended to enable the batteries to cross obstacles such as steep-sided irrigation canals, &c. The bridge, which can be constructed with great rapidity, is stated to be strong enough for the passage of 15-cm. heavy field howitzers.

The material carried by a single battery is sufficient for the construction of a bridge 2·50 m. (8·2 feet) wide and 3·60 m. (11·3 feet) long, or of a footbridge double that length.

The road-bearers, three in number, are made of U-iron, which is carried in lengths of 1·80 m. (5·9 feet), the two lengths required for each road-bearer being connected by means of fish-plates and bolts.

Each road-bearer is stiffened by means of a U-iron truss [2·60 m. (1·9 feet) in length], and two U-iron tie rods [2·1·90 m. (5·9 feet) in length].

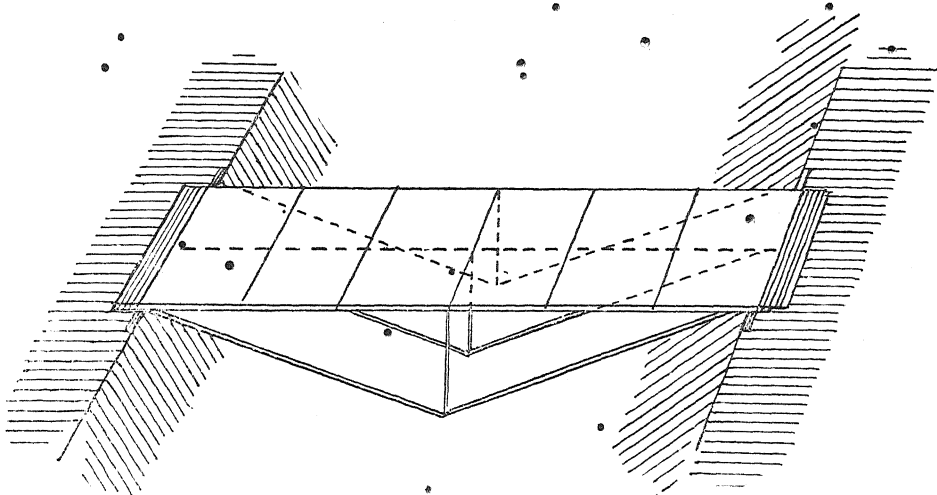
The two shore transoms have recesses cut in them for the reception of the road-bearers.

With the material carried by two batteries a bridge 5·40 m. (17·7 feet) or possibly 7·20 m. (20·6 feet) in length can be constructed.

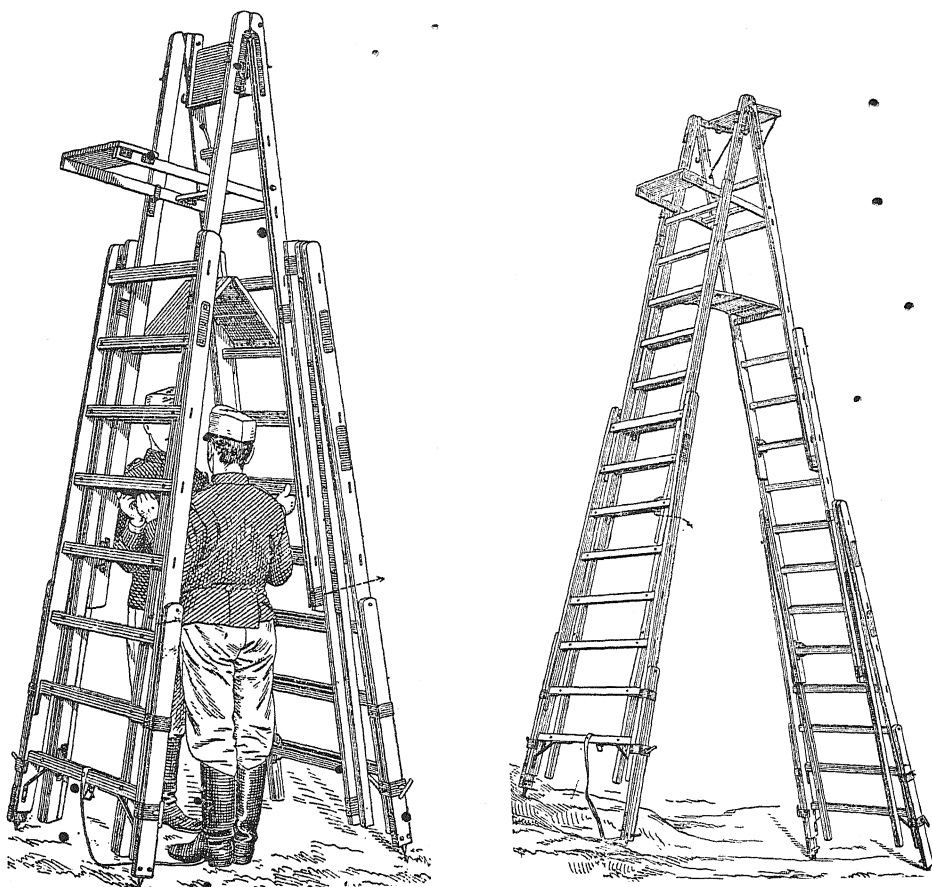
The material can also be utilised for the construction of ramps for the entrainment or detrainment of horses and vehicles.

On the top of the wagon body is carried the observation ladder by means of which an observer can be raised to a maximum

Artillery Light Bridge (Wurfbrücke).



Artillery Observation Ladder.



height of about 18 feet above the ground. The apparatus consists of two telescopic ladders (each in three sections) hinged together at the top. The feet of the ladders have lengthening pieces so as to enable the apparatus to be set up on uneven ground. Near the top of the ladder are three horizontal boards; the observer sits on the middle one (level with the third rung from the top), places his feet on the lowest one (level with the fifth rung) and uses the one which projects from the top rung as a writing table. Although it is quite possible that the ladders were employed during the manœuvres, none were actually seen in use.

No cases were observed of artillery entrenching themselves, but the positions almost invariably selected were well down the reverse slopes of hills so that entrenching was hardly essential.

Some of—or possibly all—the horse-artillery batteries used flags (white for infantry, red for cavalry, and red and white for artillery) to indicate the arm upon which their fire was directed, but none of the field batteries were provided with these flags, and it is understood that this system is now regarded as ineffective and has not been replaced by any other.

The flashlight apparatus for showing troops that they are under artillery fire has similarly been discarded. A description of this apparatus, and of the method of using it, was given in "Streffleur's Militärische Zeitschrift" for August 1907. The apparatus was tried experimentally, but only on a very limited scale, during the 1906 manœuvres.

No ammunition columns were improvised for the manœuvres.

The Three Arms Combined.—Allusion has already been made to the failure of the initial Blue reconnaissance. The immediate result of this failure was that the Blue commander, in ignorance as to the exact line of the enemy's advance, considered it necessary to advance on an abnormally broad front. Consequently, though numerically superior to the IXth Red Army Corps, the only hostile troops within striking distance, he only just escaped being defeated by it in detail.

The subsequent movements of the Blue forces seemed to indicate some indecision on the part of their commander. So far as can be ascertained the 40-mile march of the 25th Infantry Division, which has been referred to above, was executed on a zig-zag course forming almost a complete letter W.

The somewhat exaggerated extensions of fronts formed a noticeable feature throughout the manœuvres. Generally speaking, extensions were carried out to such a degree that the reserves had to be pushed prematurely into the fighting line, with the result that the commander was left without means of driving home his attack at what should have been the decisive point.

Allusion has already been made to another noticeable feature in the operations, viz., the very doubtful nature of the

support afforded by the artillery to the infantry and the want of co-operation between these two arms.

Medical Services.—Each infantry and cavalry division was provided with a skeleton divisional medical unit.

The infantry units consisted of—

- 3 ambulance wagons (4-horsed).
- 1 aid-post wagon (2-horsed).
- 1 equipment wagon (2-horsed).
- 2 field hospital store wagons (4-horsed).

The cavalry units consisted of—

- 2 ambulance wagons (4-horsed).
- 1 aid-post wagon (4-horsed).

Prior to the commencement of the manœuvres, the Moravian Government issued instructions that the various parish authorities were to take steps to have all sources of water supply which were not fit for drinking purposes clearly labelled to that effect.

Parish authorities were also instructed that any case of an infectious disease was to be at once reported to the military authorities.

A list of some ten villages in which the water supply was known to be defective, or in which there had recently been cases of typhoid fever, was circulated to the troops before the manœuvres, and the billeting of troops in these villages was prohibited.

Searchlights.—Each infantry division was provided with a searchlight section, those of the Red force being transported by horses, while the Blue sections were provided with motor transport. Each section had one 90-cm. (35-inch) searchlight. In addition, the horse-draught sections had a 35-cm. (13·6-inch) and the motor sections a 60-cm. (23·4-inch) searchlight each.

No accurate details as to the motor sections are available, but it is understood that the 90-cm. searchlights were carried on 80-H.P. motor wagons, the motors of which could be utilised for working the dynamos.

It is believed that the searchlights were frequently used in the outpost line.

Machine Guns.—Every infantry regiment had at least one machine-gun section (of two guns), one regiment of the IXth Army Corps and 10 out of the 13 regiments of the IInd Army Corps having two sections each. It appears clear that the ultimate intention is to provide each battalion with one machine-gun section, which will have two guns both in peace and war (not four guns in war, as was originally intended).

The establishment of each section was increased during the manœuvres to 22 men and 6 horses.

The machine guns were invariably used in pairs, *i.e.*, sections were never split up, and in no case were two or more sections

massed. The guns were generally well handled. They were frequently used for covering fire, especially enfilade.

The shields were seldom made use of, and the guns were seldom entrenched. Upon the only occasion on which an entrenched machine gun was seen, the entrenchment consisted of a small excavation about 2 feet wide, $4\frac{1}{2}$ feet long, and 6 inches deep, with the earth thrown up in front. This entrenchment afforded fair cover for the man who was actually firing the gun, but none whatever for the man who was feeding the ammunition.

When in action, the tripod was generally arranged so that the machine gun itself was only just above the level of the

Infantry Machine Guns.



On the Line of March.

ground, and consequently the gun presented a very inconspicuous target. The position of a machine gun could usually only be located when the gun was actually firing, and then only because the blank cartridges produced a slight smoke. It is understood that the service cartridges produce no smoke whatever.

Each of the cavalry divisions had a machine-gun section of four guns.

Field Bakeries.—Each of the seven infantry divisions was provided with a field bakery consisting of—

- 3 4-horsed travelling field ovens.
- 1 2-horsed country cart, for the transport of personnel.
- 6 2-horsed country carts for utensils.
- 3 2-horsed country carts for flour.

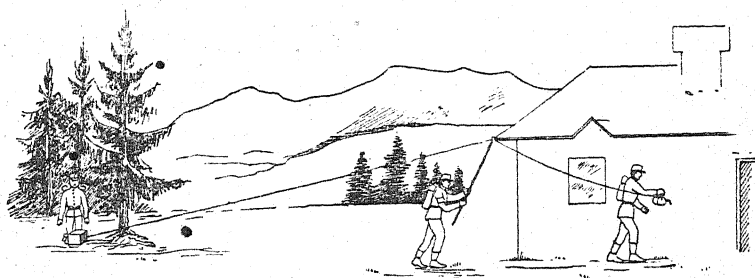
Each oven is capable of turning out 50 loaves per hour.

Telegraph and Telephone Equipment.—Each army, army corps, and infantry and cavalry division was provided with a telephone or telegraph unit. No opportunity occurred for inspecting the equipment of any of these units, but it is understood that the telegraph is rapidly giving place to the telephone. Cables are used entirely it seems. No airlines were seen throughout the manœuvre area.

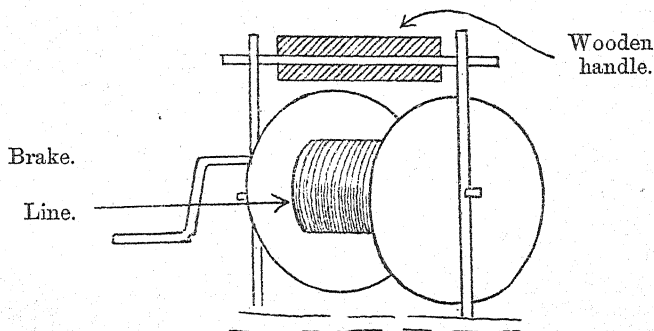
The cavalry telephone patrols have been referred to above.

Every company of infantry is now provided with telephone equipment which can also be used for telegraphic communication. The equipment which was in constant use during the manœuvres consists of one terminal station with battery and 1,500 metres of light cavalry wire. It is carried on the company ammunition wagon. When likely to be required for use it is removed from this wagon and carried by three men in special wallets fitted similarly to and in the place of the "Patromen-tornister" (a large cartridge pouch carried in the small of the back suspended from the knapsack).

Infantry Telephone Equipment.



Method of laying Telephone Wire.



The wire is rolled on a light metal reel which, when the wire is being paid out or rolled up, is suspended in a light metal carrier with a handle at the top. A crank-shaped handle can be attached to the end of the reel for use in winding up.

Full details are already known as to the telephone equipment carried by the field artillery.*

Wireless Telegraphy.—As in former years, each force was provided with two field wireless stations. This year there were in addition two stations of a new type at the disposal of the directing staff.

Remarks in connection with the older type stations will be found in the "Report on Foreign Manœuvres, 1907."

The new type stations are said to have a greatly increased range of communication, extending to 520 kilometres (over 300 miles), the plant being procured from the "Telefunken Siemens" firm in Nauen, near Berlin, at a cost of only 1,000% per station.

The mast utilised is of the "Leidl" pattern, and consists of ten 4.5-metre (nearly 15 feet) lengths of collapsible steel tubing. For the large range of communication the whole length of mast is erected; for the manœuvres, a length of only 27 metres (about 88 feet) was used, this being sufficient for a distance of 200 kilometres (124 miles).

The time required for the erection of the mast and preparation for opening of communication is, for the whole length of mast, $2\frac{1}{2}$ hours; for the shorter length, alluded to above, half that time.

The equipment is conveyed in one double four-horse wagon, the receiving apparatus being carried in the hinder-carriage, the sending in the fore-carriage.

Visual Signalling.—All artillery and infantry units are provided with signalling flags, and infantry units have both acetylene and paraffin lamps in addition.

Every company of infantry has three flags (one red, one white, and one yellow), each about 3 feet square, with a jointed pole about 6 feet long in three sections. The flags and poles together with the two company lamps can be carried in the telephone box on the company ammunition wagon. When likely to be required for use the flags, in their case, are either slipped through the straps of a man's knapsack or strapped on to the barrel of his rifle. The lamps can be carried strapped on to a man's knapsack.

Three men per company are specially trained in optical signalling, but all officers and (full) N.C.O.'s, as well as the more intelligent lance-corporals and privates, are expected to be able to read and send messages. It is believed that the standard of efficiency of the signallers is far from high. The flags were never seen in use during the manœuvres, but the writer had no opportunity of seeing whether the lamps were used.

Balloons.—Each of the opposing forces was provided with a field balloon detachment. It is believed that these detach-

* Extracts from "Artillerie Unterricht 8 cm. Feldkanonen, M. 5."—(General Staff.)

ments were equipped with both spherical and sausage-shaped balloons, but only the latter were used. No free balloons or airships were used during the manœuvres. The sausage-shaped balloons are provided with 600 to 650 m. (650 to 710 yards) of cable, but it is doubtful if they ever ascended to much more than half that height. On more than one occasion balloons were seen in a position where they could apparently have been easily "knocked out" by the hostile artillery firing from their ordinary carriages.

On the first day of the manœuvres one of the balloons ascended to a very moderate height, at a distance of barely 2,700 m. (2,940 yards) behind their own artillery who were engaging the enemy's artillery at a range of less than 2,500 m. (2,720 yards), the latter being in a position whence it would have been quite easy to push forward a single gun or a section, under cover of a wood, to a position whence the balloon would have formed an easy target.

Cyclist Companies.—Each cavalry division was provided with a cyclist company about 100 strong. These companies had been specially improvised for the occasion. Formerly a rifle battalion was attached to each cavalry division, but these have recently been withdrawn, and it is not improbable that permanent cyclist companies will soon be organised to take their place.

Automobiles, &c.—Extensive use was made of automobiles, motor cyclists and mechanical transport during the manœuvres.

The Austrian Volunteer Motor Corps now numbers some 50 members, of whom about 35 to 40 were present at the manœuvres with their cars. Some 75 members of the Volunteer Motor Cyclist Corps were also present, out of a total membership of about 100. Owners of small 8 to 14 H.P. motor cars as well as owners of motor cycles are eligible for membership of this latter corps.

Some of the above motor vehicles were utilised in connection with the Imperial Headquarters; the remainder were distributed among the various staffs.

Mechanical transport was also extensively used for supply purposes. No accurate details are forthcoming, but it is believed that at least 30 motor wagons, each drawing two or three "trucks," were present at the manœuvres, in addition to a miscellaneous collection of traction engines, petrol wagons, travelling repairing shops, &c.

The actual number of motor wagons in the possession of the Austrian War Department is not known, but it is believed that there are altogether 124 "trucks," and that 80 more are now under order.

Travelling Kitchens.—Great progress has recently been made in the equipment of the army with travelling kitchens.

Nearly every company, battery and squadron was provided with one of these kitchens for the manoeuvres and it is believed that the kitchens proved a great boon to the men ; at the same time, they were not always at hand when required, and in some cases were placed with the baggage instead of with the fighting train.*

A travelling kitchen (*see* "Manoeuvre Report, 1908") is capable of cooking for 250 men. Units which were too small to be provided with these kitchens were equipped with "cooking chests" (*Kochkisten*). These consist of a box-shaped cooking vessel, roughly 24'' by 10'' by 10'', which is carried in a heat-proof chest on a wagon or pack-animal. The cooking vessel, after being filled with the food which is to be cooked, is placed on a special stove for about 20 minutes and is then put into the chest. The heat is retained sufficiently to complete the cooking, and the food is stated to remain hot for 24 hours.

All the Austro-Hungarian "mountain troops" are equipped with these chests instead of with travelling kitchens.

* In Austria-Hungary the regimental transport is divided into "Fighting train" and "Baggage train."—(General Staff.)

AUSTRIA-HUNGARY.

PART II.—ARMY CORPS MANŒUVRES.

The manœuvres of the IIIrd (Graz) Army Corps District took place in Carinthia on the 9th, 10th, and 11th September.

STRENGTH AND COMPOSITION OF THE OPPOSING FORCES.

The first day was allotted to Brigade exercises. On the two days following the 6th Infantry Division (Lieutenant-General F. Wikullil) opposed the 22nd (Landwehr) Infantry Division (Lieutenant-General Otto v. Meixner). Each division comprised 13 battalions, 4 field gun and 2 field howitzer batteries, 3 squadrons, and 2 companies of pioneers, while the 22nd Division had in addition a cyclist detachment.

COUNTRY.

The operations took place near Völkermarkt in the valley of the Drau, a deep, broad river with but few bridges. This is the district in which were held the Imperial Manœuvres of September 1907 (*vide* "Report on Foreign Manœuvres, 1907," p. 8). The country is very hilly and much wooded. From some of the higher hills in the area, however, a good view is to be obtained, as also from the mountains which run parallel to the River Drau on both banks at a distance of some six miles. Between the woods the ground is closely cultivated but there are no fences. The roads are everywhere fairly good.

METHOD OF CONDUCTING THE MANŒUVRES.

Umpires.—As in the case of the Grand Manœuvres, the umpiring was quietly and efficiently carried out. When a crisis was reached, a decision was promptly given and one side ordered to retire, upon which fire was again opened.

Casualties were practised in the corps manœuvres, while on one occasion 3 whole battalions of infantry were placed out of action as summarily as the cavalry division alluded to in the report on the Grand Manœuvres (*see* p. 10). As a rule, however, troops were not put out of action altogether; they were informed by the umpires (as laid down in the official instructions on the subject, *see* footnote, p. 4), that they had suffered a certain percentage of losses in men and had expended an estimated amount of ammunition.

Conferences.—Conferences were conducted on a uniform system. The General responsible for the scheme himself explained the General and Special Ideas and described the whole of the operations, criticising as he went. Individual commanders and other officers were called upon to explain certain incidents as required. Explanations were allowed but anything in the shape of arguing was promptly repressed. The conference ended with some remarks by the senior officer present, in this case the Inspector-General (Lieutenant-General Ferdinand Fiedler).

The chief faults found at the Conference were as follows:—

- (a) The incorrect use of "indirect" fire by the artillery. The General laid down that as long as the enemy's main columns only were fired on "indirect" fire was correct. If, however, it became the duty of the artillery to support the infantry attack the "direct" method should be employed.
- (b) The way the infantry on the Blue side got out of hand, *e.g.*, 1 battalion was spread over the whole front of the action. Also insufficient scouting and reconnaissance.
- (c) The neglect of the infantry to build up a dense firing line; and, on the other hand, reserves too far to the front.
- (d) Neglect of communications.

Distinguishing Marks.—One side wore a broad red cotton band round the head—this was very distinctive without being too conspicuous.

Umpires wore a similar band of white material.

Troops out of action for a specified time wore white bands round their caps.

Manœuvre Rights, Crops, Compensation.—Apparently manœuvre rights need not be acquired. Crops and woods were freely entered, but troops were blamed if they damaged crops when the situation did not make it necessary. When the manœuvres are over an officer is left behind to receive claims for damages; he visits the locality and makes a very liberal offer of compensation (often twice what the damage done is really worth). Should the owner be not then satisfied he may write to the Ministry, and special officials are sent to settle the matter. It is said that this very rarely occurs.

Billeting and Distribution of Supplies.—Troops were allotted billets from the map without any visit being made to the locality by any Staff or other officer; when allotted, regiments sent their representatives to arrange accommodation. The capacity of the district as regards houses, provisions and water was reconnoitred beforehand. The system of supply is

that the company quartermaster-sergeant (or equivalent) buys locally whatever food is required, which is cooked in the company kettles carried in the transport.

REMARKS.

Officers.—The 3rd Army Corps is commanded by Feldzeugmeister O. Potiorek, who is a man of great character, energy and capacity. He appears to command the confidence of all ranks, and the high degree of efficiency to which the corps has attained is said to be largely due to him.

Among the officers generally there appeared to be much greater freedom in intercourse and in dress than is usual among officers of continental armies. Their habits in this respect seem more like ours. As far as could be seen, both staff and regimental officers were efficient and well acquainted with their duties. They were not as a rule good linguists, only a very few being able to speak either English or French.

Infantry.—The actions on all three days were encounter battles. There was therefore no opportunity of seeing a prepared, systematic attack. The extensions generally seemed much the same as with us—as much as 20 paces between the men in the initial stages, gradually making up the firing line to 1 man per yard, and in some cases even double rank in the final fire position. The supports and reserves were not always well handled, but were frequently observed lying down in the open some 100 yards in rear of the firing line when good cover was to be obtained another 50 to 80 yards in rear. No use appeared to be made of scouts; that this would have led to disaster in the fog of the 11th September and in the wooded country in which the manœuvres took place can scarcely be doubted. Fire discipline and control appeared to be good. Bayonets were always fixed at under 300–200 yards, even during the close fighting in the woods and fog.

The rank and file were not wearing the new field service uniform, but many officers wore it. It consists of a blue-grey coat with pockets like our khaki frock but loose at the waist, grey riding breeches and Stohwasser gaiters. All officers were in possession of Zeiss field glasses.

Cavalry.—Very little cavalry was present, there being only 3 squadrons of Uhlans, 3 of Hussars, and a troop of Hussars which furnished the horses for the staff and did orderly duty. The information brought in by the cavalry was bad and led to surprise on the first day and to mistaken conclusions on the second. Whether this was the fault of the cavalry, or whether it was due to the orders given to it, was not ascertainable.

The horses were of the right stamp and, though on the light side, looked well. The men, especially the hussars, rode well. Little use was made of cavalry dismounted.

Machine Guns.—Machine guns were never massed but were used everywhere in pairs and with great boldness. In spite of this they were most difficult to locate, the tripod on which the gun is mounted making concealment easy. Employed as they were it would be difficult, if not impossible, for artillery to find and silence more than a small proportion.

The fact that the guns are supplied with a method of rapid fire for manœuvres adds greatly to the reality of the operations and assists materially in the training connected with this arm. A special barrel is made for firing blank ammunition and the cartridges are loaded with paper bullets exactly similar in shape to the service bullet; with these, approximately the same rate of fire can be obtained as with ball ammunition. Care must, however, be taken in their use, as they are capable of wounding up to 35 yards. The guns were equipped with a linen bag which hooked on and caught all empty cases.

Communications.—Intercommunication and combination was undoubtedly much assisted by the practice instituted by General Potiorek of requiring from each officer and man a knowledge of the situation in his vicinity. It was the General's practice, on riding up to a fresh part of the field, to inquire for the situation, and he never failed to receive a full and clear statement. Each private soldier is supposed to know the company and battalion on his right and left, and so on up the different grades to the Commander from whom the position of each unit under his command is required. Where some such method is not already in vogue, this system seems worthy of imitation.

B E L G I U M.

Grand Manceuvres of two divisions of the Belgian army were held from the 1st to the 9th September between Gand and the Belgian-French frontier in the vicinity of Maubeuge, the two divisions taking part being the 1st (Red) division, which concentrated in and around Gand, and the 2nd (Blue) division, which was assembled in the vicinity of Philippeville-Chimay.

STRENGTH AND COMPOSITION OF THE OPPOSING FORCES.

The troops engaged were as follows :—

1st Division (Red Force).

Commander - Lieutenant-General Thys.
 Staff Officers - 1 Lieutenant-Colonel, 1 Major, 3 Captains, and 3 Lieutenants.
 Attached Officers - 12, comprising doctors, army service corps officers, &c., &c.

Troops :—

	Approximate Strength.
1st Infantry Brigade - - -	3,950
2nd Infantry Brigade - - -	3,950
1st Battalion of Carabiniers - - -	360
Cyclist Company of 1st Carabiniers - - -	130
3rd Regiment of Lancers - - -	545
4th Regiment of Lancers - - -	570
18th and 19th Batteries of Horse Artillery	8 guns.
1st Regiment of Field Artillery (7 batteries)	28 guns.
1st Company of Engineers.	
1st Section of Field Telegraphists.	
Ambulance column.	
Army Service Corps.	
Remount dépôt.	

With a total strength of about 11,300 men, 2,191 horses, and 167 vehicles.

2nd Division (Blue Force).

Commander - Major-General Berger.
 Staff Officers - 1 Lieutenant-Colonel, 1 Major, 2 Captains, 4 Lieutenants.
 Attached - 12, as for 1st division.

Troops:—	Approximate Strength.
3rd Infantry Brigade - - -	3,690
4th Infantry Brigade - - -	3,620
2nd Battalion of Carabiniers - -	380
Cyclist Company of 2nd Carabiniers -	124
Cyclist Company of 3rd Carabiniers -	123
1st Regiment of Guides - - -	530
2nd Regiment of Guides - - -	530
2nd Regiment of Lancers - - -	525
38th and 39th Batteries of Horse Artillery	8 guns.
2nd Regiment of Field Artillery (6 batteries)	24 guns.
2nd Company of Engineers.	
2nd Section of Field Telegraphists.	
Ambulance column.	
Army Service Corps.	
Remount dépôt.	
Experimental automobile convoys.	
With a total strength of about 10,600 men, 2,523 horses, and 148 vehicles.	

COUNTRY.

The terrain in which the opposing forces operated is undulating, with heights rising to about 150 or 200 feet above the general level of the country, and affords excellent positions and good facilities for the manœuvring and concealment of troops. Roads are numerous though for the most part extremely rough, the principal ones being the Napoleonic "routes pavées."

The land, which is highly cultivated and open, is dotted about with numerous small holdings and villages; small woods and copses abound, but good views are always obtainable from the tops of the ridges, and the country is most favourable for the co-operation of all arms.

NATURE OF THE OPERATIONS.

The General Idea set forth that a "Red" force was assembled around Gand on the 1st September for the purpose of covering an imaginary "Red" army advancing from the north-west in a south-easterly direction, whilst a "Blue" force was concentrated between the Sambre and Meuse ready to repel the "Red" and prevent it gaining its objective.

The 1st, 2nd, 3rd and 4th September were days of marching. On the 5th, which was a day of rest, the position of the troops was as follows:—

"Red" force at Lessines, Ghislenghien, Bassily, with the cavalry and cyclists on the fine Ath-River Dendre-Brugellette-Cambiron-Horruet-Rebecq.

"Blue" force south of the "canal du centre" in vicinity of Trivières and Bellecourt, with the cyclists and cavalry on the line Neuville-Soignies-Braine le Comte.

On the morning of the 6th, the "Blue" cavalry was driven back behind the road running from Ath *viâ* Soignies to Enghien, but the Commander of the "Red" issued orders that, as a determined attack was to be expected, his force was to hold the line Meslin l'Eveque-Hellebecq; the "Blue" force, receiving news that the "Red" was holding the line Silly-Enghien, attacked vigorously. By midday the "Blue," having driven back the "Red," was in possession of all the ground to the south of the road from Ath to Enghien, the "Red" being in position on the high ground at Stoquoi-Stoquoy-Bourlon.

On the 7th, the "Blue" force held the attention of the "Red" in front and made a turning movement round the latter's right flank, the finale of the operations being a general advance of the "Blue" force in which it would have suffered severely owing to the enemy having taken up a well-conceived false front ($2\frac{1}{2}$ miles in front of and below the main position), against which the troops of the "Blue" advanced in serried ranks; had the "Red" troops reserved their fire slightly longer than was the case, it is probable that not one man of the attacking party would have been left. It was ruled, however, that the "Blue" force had won the day, and the "Red" force was ordered to retire.

On the 8th, the forces had got so close to each other that the Directing Staff considered it advisable to issue orders to the effect that the "Red" imaginary main army had assembled on the Escaut, with its advanced troops well forward, while the "Blue" force received information that the main "Red" army was on its way towards Ath. These orders were issued evidently with a view to causing the "Blue" to retire and to fight a delaying action under the eyes of the numerous inhabitants of the district who, to their credit be it said, were most enthusiastic. In fact, the crowd often interfered with the operations and gave away the positions of the troops.

METHOD OF CONDUCTING THE MANŒUVRES.

The Director of Manœuvres, Lieutenant-General Mascart, left each of the Commanders a free hand.

A state of war commenced daily either at 4 a.m. or 7 a.m.; the "cease fire" usually sounded about noon. Although outposts were put out after dark, this duty was rather perfunctorily carried out, and a state of peace practically existed from mid-day until 4 a.m. on the following morning.

On the morning of 6th September, the 1st day of Grand Manœuvres, the headquarters of the two armies were only 8 miles apart; as a consequence exploratory work on the part

of the cavalry was out of the question, and there was very little latitude for manœuvre left to the divisional commanders.

No "skeleton force" was made use of except on the 8th September. On that day the main "Red" army, whose concentration had been covered by the "Red" division, was judged to have arrived on the scene of action and was represented by a skeleton force.

The corn was cut so that troops could manœuvre freely. No attempt was made to avoid the beetroot or clover fields. The country people stated that they had no objection to manœuvres as regards the inconvenience caused by having to tie up their cattle. They had been promised compensation for any damage to crops, and as long as this was paid they felt they had no grievance.

Umpiring.—The Director of Manœuvres, who always acts as Umpire-in-Chief, was assisted by a larger staff of umpires than usual, consisting of 9 generals, 2 colonels and 24 other officers, making a total of 36 umpires. No special orders or new ideas were issued.

One group of artillery was furnished with a luminous disc arranged on the same principle as a heliograph, which could be directed on to the enemy. When this group opened fire, the disc was directed on to the target, the method employed for demonstrating which branch of the army was under fire being as under:—

- Artillery - Rapid fire for 2 to 3 minutes, the disc being "projected" on to the opposing artillery and showing a succession of double dots (i i i i i of the Morse code).
- Infantry - Single shots at intervals of 15 seconds, the disc being "projected" on to the target with fixed light.
- Cavalry - Fixed light as for infantry, but the rate of fire was more rapid.

The above method did not appear to counteract to any appreciable extent the inevitable difficulties of helping a force to realise which of its units are under fire, the chief drawback being that the further away the target was, the more widely were the "rays" to be seen, and consequently more men were "shown" to be under fire than was in reality the case.

REMARKS.

Staff.—The orders of the Staffs of both forces were most careful and minute, comprising instructions for practically every unit or detachment and leaving no scope for the initiative of the Brigadiers. This was due probably to the system of billeting the troops, which necessitated the splitting up of

brigades. It was therefore more convenient to issue orders to the "Officer Commanding Advanced Troops or detachments" and to "Commandants of Cantonments" than to Brigadiers.

As an example of this, the undermentioned units were referred to in the orders of the Commander of the "Red" force on one of the day's operations:—

- (a) The cavalry and advanced troops;
- (b) Supplementary advanced troops by name, viz., the IIIrd Battalion of the 4th Regiment of line, the 8th Battery field artillery, the IIInd Battalion of the 4th Regiment of line, the 7th Battery of field artillery, the 1st Battalion of the 4th Regiment of line, the 6th battery field artillery, the 4th Regiment, the 3rd Group field artillery;
- (c) IIInd Battalion of the 2nd Regiment of line, the IIInd Battalion of the 3rd Regiment of line, one company of the 2nd Regiment of line, two companies of the 1st Regiment of line, detachment from the 2nd Regiment of line, 3rd Regiment of line.

The orders laid down the time and place for these units to take up their posts, and it devolved upon the commandants of the various billeting cantonments to ensure that the orders were carried out.

Broadly speaking, it may be said that the orders of the Commanders of the two opposing forces were written in minute detail, and that those of the Brigadiers and subordinates were for the most part verbal.

The Three Arms combined.—In connection with the higher leading, an officer reports:—

"The leading impression left on the writer's mind was that a policy of half measures was adopted by the commanding generals. It appeared to be understood that the side which 'attacked' carried out certain recognised moves against which the side which 'defended' made the recognised counter moves. No General Reserve was kept in the hands of the General Officer Commanding-in-Chief either in attack or defence, so no weapon was available to carry out any decisive attack. But there seemed to be no desire to do anything decisive; the tendency seemed to be to endeavour to avoid defeat rather than to risk everything to force a victory.

"Reserves were used for parrying not for striking. The 'Blue' army, which generally took the offensive, marched on two roads, one brigade on each road, with no General Reserve.

"The 'Red' army, when it took up a defensive position on September 7th, had one regiment in local reserve to one brigade and two battalions to the other brigade, both in rear of the centre; there was no General Reserve.

"This may be partly accounted for by the organisation of a Belgian division in two brigades, an organisation that it is difficult to subdivide into three parts. Possibly this absence of a General Reserve is due to German teaching; it seems, however, to be distinctly doubtful if tactical theories suitable to an army of twenty-three corps are equally suitable to an army of four divisions."

Frontage.—When advancing in column of route previous to an attack, the two brigades of a division were usually about 2,500 yards apart. It is difficult to estimate the front of a unit in the attack, but a battalion appeared generally to be on a front of about 350 to 400 yards.

On September 7th, the defensive position taken up by the "Red" Division had a front of from 4,500–5,000 yards.

ADVANCED GUARDS.—The following was a typical advanced guard for a division :—

- 1 squadron.
- 2 battalions.
- 1 battery.
- 1 section of engineers.
- 2 ambulances.

The advanced guard was usually about one mile in front of the head of the main body.

Small Columns.—On two occasions the "Red" defensive side sent out three small columns to reconnoitre to its front ; on the first occasion they consisted each of one battery, one battalion and some cyclists ; on the second occasion they were each composed of one squadron and one battalion, the infantry acting as support to the cavalry.

On the first occasion they acted as an advanced guard and were finally merged in the general action.

On the second occasion one of these columns, after a march of about two miles, encountered the enemy and caused the deployment of the whole of the hostile 3rd Brigade, making good their retreat through some woods.

Co-operation.—No system of co-operation between the three arms was apparent ; co-operation between artillery and infantry certainly left almost everything to be desired.

Infantry.—The men were frequently afoot by 2 a.m. and occasionally did not reach their billets until 6 and 7 p.m. ; they carried a very heavy pack and were very unlucky as regards weather ; their cheerfulness and good temper under these conditions show that they are good hard-working soldiers. The physique of the line, as far as appearances went, was poor, below that of one of our home battalions (notwithstanding the difference in the age of recruits).

The intelligence of the men appeared to be generally a great deal below that of the French army, partly, perhaps, because there were more Flemish than Walloons in the ranks.

Tactics.—The Belgian infantry has apparently made but little progress during recent years. Speaking of the attack, an officer reports :—

"It is difficult to know where to begin to criticise the conduct of the infantry attack; it is not too much to say the methods employed seemed to be based on the principle that war is conducted with blank cartridges.

"The general rate of advance was far too quick. The men moved in quick time, the normal extension being single rank. Fire tactics were practically non-existent, no attempt being made to establish fire positions or to employ covering fire; ranges were not taken; the men rarely lay down but usually knelt or stood when firing and did not always aim; ammunition carriers were not employed; advances were never made by a unit smaller than half a company, the initiative for each advance coming from the captains of companies who, like all other officers, invariably stood up the entire time.

"Supports moved in line of sections in fours or in line and usually about 30 to 40 yards behind the firing line, the reserves a similar distance behind the supports; if the enemy reserved their fire until the reserves were in sight, the whole of these 3 successive lines would be pinned to the ground for an indefinite period.

"Before an attack a reconnaissance was sometimes made by '*Groupes d'Exploration*.' These groups consisted of from four to six men under a non-commissioned officer and were in the proportion of one group per company. The methods adopted by them suffered from the same defect as was observed in the infantry attack, namely, ignorance of the deadliness of modern rifle fire. The group usually marched slowly forward at about 4 paces extension until within 100 yards of the enemy, when the men laid down and the non-commissioned officer went back with any information he had collected.

"The remarks in the above paragraph are an unexaggerated statement of fact, but it is only fair to say that there are indications that the prevailing methods will shortly be altered. Here and there one saw an officer, usually a young officer, who was endeavouring to establish a fire fight. On one occasion the writer saw trenches made in the attack."

Another eye witness reports that attacking infantry made very little attempt at concealment.

Entrenching.—The occupation of the position north of Ghislenghien on September 7th was well carried out. In the centre portion a line of trenches ran along the forward crest of the position and would have made a good target for artillery; in the flank portions of the line the infantry trenches were well down the forward slope of the hill and completely defiladed by trees, houses, &c., from the hostile artillery. From this position a range of from 400 to 600 yards was available. These trenches were intended as a surprise to the enemy.

Supports and reserves were unentrenched but were placed either in houses on the exposed slope of the hill or in folds of the ground in rear.

Only one instance was seen of entrenching in the attack. The men were lying down at about 500 yards from the enemy; one man in each four dug while lying down and pushed forward the earth to form a small parapet, the theory apparently being that the digger was covered by the fire of the other three men in the section. The parapet was a very modest affair, about 9 inches high and about 5 inches thick on an average.

In the defence the trenches made were all of one type, with a parapet 2 feet high and a trench 3 feet broad and 2 feet deep. They were made by the infantry under the supervision of their own officers and were masked fairly effectually by straw or grass, but no traverses, recesses, or head cover were used, nor were there covered approaches or communicating trenches for supports and reserves. The artillery did not entrench.

Want of Watchfulness.—The passive attitude noticeable throughout all ranks was especially to be observed among troops "on the defensive." There was very little attempt made to take the attacker by surprise, and the defending troops usually only opened fire after they had been shot at by the attacker. On one occasion two battalions marched in column of fours for 70 yards down a road along the front and in full view of two companies of hostile infantry 300 yards off without a shot being fired at them.

Visibility.—The uniform of the infantry (long blue great coat, dark shako or round "pill-box" cap) made them very visible when in movement, while their large packs made them equally so on the few occasions that they lay down.

As regards the officers, their uniform, especially their gold-laced "kepi," was very visible, and they invariably stood up and even remained on horseback within decisive ranges.

Cavalry.—The cavalry, both officers and men, are on the whole of a better class than the infantry. They are well mounted and good riders, and take care of their horses. The cavalry scouted well during the first part of the manoeuvres, but when the two opposing forces came into close contact they appeared to await events in the hope of bringing off a brilliant charge. Dismounted work did not seem in favour, the attached cyclists being relied on to a large extent for fire action (see p. 34).

Ground scouts were not always employed; on one occasion a regiment, while charging infantry, found itself stopped by an impassable ditch within 150 yards of the enemy.

As with other armies, spectacular cavalry charges are popular. On September 7th the "Blue" cavalry made a raid with two regiments round the right flank of the "Red" army, and after a march of 12 miles succeeded in capturing a battalion with a quantity of transport, and, what was more important, ascertained that the "Red" reserves were not on the right flank. The "Blue" cavalry were not, however, satisfied but proceeded to execute a charge over 1,000 yards of open ground against more than a battalion of infantry backed by a brigade of artillery. The cavalry was formed into three bodies, one group charging the infantry and the other two attacking the guns in front and flank. The umpires put the two regiments of the "Blue" cavalry out of action for the rest of the day.

Artillery.—The artillery used, for the first time at grand manœuvres, the new 7.5 cm. Q.F. field gun which was considered on all sides to be a success.

The men appeared to be well drilled and to know their duties, while the guns and wagons were well horsed, but, as noticed in 1906, the general turn-out was not smart and the gunners seemed to have no pride in their guns.

The unit is the brigade which is rarely split up, although single batteries are allotted to the advance guard and occasionally sent to support strong reconnaissances. Each battery in a brigade was usually given a separate target so that the fire was divergent. On some occasions the brigade came into action in an echelon or V-shaped formation, and if a change of target was ordered, batteries fired in front of each other at an extremely dangerous angle. Gun teams were usually placed behind the centre of their batteries and far too close.

Indirect fire was usually resorted to, but there were several instances of batteries coming into action just behind the crest of a hill where the target could be seen over the sights. Batteries did not often change their positions, and the usual range, owing to the undulating nature of the ground, was between 2,500 and 3,000 yards. The artillery in the attack often failed to support properly the infantry, while in the defence they were slow to take advantage of suitable targets and did not deliver any methodical fire against the hostile infantry.

Observation Ladder.—An observation ladder was carried, consisting of a length of ladder about 8 feet long, with a shorter length about 4 feet long under it, so that the whole could be drawn up telescopically to a length of about 10 feet. This ladder was supported on a two-legged strut.

The ladder appeared to be similar to that mentioned in the "Report on Foreign Manœuvres 1907, Germany," p. 76.

The thin iron rungs of the ladder were jointed so that the ladder packed flat, somewhat on the principle of an "X" pattern camp bed.

This ladder appears to be used solely for "observing."

Telephone.—One artillery brigade used an experimental telephone equipment. This was worked by 2 men (artillerymen), each of whom had a small drum carrying about 200 yards of wire.

The receiver had no mouthpiece, so that it was impossible to speak and listen simultaneously: the results appeared to be unsatisfactory.

There were no signallers, so that, in default of the telephone, all messages were either given verbally or by orderly.

Engineers.—The engineers were employed either in entrenching or in throwing up "points d'appui," and in the technical duties of telegraphy and telephony.

Cyclists.—Three companies of cyclists of the Carabinier regiments were attached to the advanced cavalry, two companies (240 cyclists) being attached to the "Blue" cavalry and one company (120 cyclists) to the "Red" cavalry. These were of great assistance in scouting and in holding defiles, *etcetera*, for the purpose of covering either the advance or the retirement of the cavalry, and they worked extremely well.

It is considered that these cyclists, when acting with cavalry, should be permitted to precede the cavalry even to distances of 50 miles for the purpose of obtaining possession of and holding a defile prior to the arrival of the mounted branch: this method of employing cyclists would appear to have advantages in Belgium where roads are numerous and dismounted action on the part of the cavalry is rare. The cyclists were extremely well trained, hardy and intelligent, and seemed thoroughly conversant with map-reading.

Medical.—A new departure was the establishment of "*dépôts d'éclapés*." By this new arrangement men who were footsore were taken temporarily into hospital and were sent back to the ranks as soon as they were sufficiently recovered.

Formerly, as soon as a man was admitted to hospital he was immediately sent home to barracks, and the number of men footsore was very large. The new plan is stated to have had a remarkable effect in lessening the number of admissions.

Wireless Telegraphy.—A wireless telegraph apparatus was experimented with by the Directing Staff.

Aeronautics.—No balloons or aeroplanes were employed.

Machine Guns.—No machine guns were used.

Transport.—An experiment was made with about 30 motor lorries for the supply of the "Blue" force. The instructions to these were very clear and the system worked well, the supplies being brought from the fortress of Antwerp in two special trains daily and being distributed among the units by means of the automobile lorries. All the lorries were hired.

The staffs, cavalry and cyclists were also accompanied by automobiles as transport, this system meeting with the approval of these units.

Two, at any rate, of these transport automobiles were ordinary touring car chassis fitted with an improvised body. Their speed was considerable, but the carrying capacity could not have been more than 1,000 to 1,500 lbs.

Steam Tramways.—Much use was made of the steam tramways for the conveyance of supplies. As there are 3,000 miles of steam tramways in Belgium, this method of transport would be highly valuable in war.

Billeting.—As is customary in Belgium, all the troops were billeted during the afternoons and nights. The system pursued is that the dismounted branches are installed in the villages nearest to the scene of the final operations of the day, the mounted branches being established in those further away. As a rule the infantry had to march 3 to 6 miles after the day's operations, the mounted branches performing a distance of 5 to 9 miles in order to arrive at their destinations.

Though the advantages of the men being under cover are great, the necessity of performing long marches after a day's manœuvre has its drawbacks, since not only does it entail extra fatigue on the troops but it also tends to slackness in the posting and keeping up of an outpost line at night, as was evidenced by the fact that the outposts were, during the recent manœuvres, more imaginary than real. Complaints, too, appeared in the Press as to the long time which elapsed before troops were settled in their billets.

The actual telling-off of the troops to billets was most carefully done and well carried out, the Commandants of the various villages being held responsible that the men in the cantonment of which they were in charge were in the appointed places at the prescribed time on the following morning.

Committee of Liquidation.—Prior to Grand Manœuvres being held a Committee of Liquidation is formed, the members of which are, as far as possible, the same as those forming the Committees which assess damages to property during fortress manœuvres and minor exercises. It is, therefore, in reality a Standing Committee. This Committee sends to the proclaimed area, before the manœuvres commence, delegates who examine the ground and farms, assisted by the local authorities and the gendarmerie, the burgomasters being always most useful in these duties as they are invariably most hard-working and knowledgeable men.

As soon as the troops have passed over any ground, certain members of the Committee assess the damage done in presence of the tenants or proprietors, handing to the latter an army form duly signed with a statement of the amount assessed for the damage done. This sum is invariably paid within three days unless the owner of the property does not agree to the sum entered on the form. (The form is well-known to all the population and has been approved by Parliament.) In the event of a proprietor not agreeing, he has the right to appeal to a tribunal, but he never does so as he is usually fairly paid for damage done and the trouble and delay of appealing are great. Numerous attempts at bluff are made, but the Committee, by virtue of its being as far as possible a standing or permanent one, has the respect of all classes and, being aided by the local burgomasters and authorities, carries great weight and is treated with confidence.

Rations.—The following special daily manœuvre ration was issued :—

Bread " <i>biscuité</i> "	-	-	-	1½ lbs.
Fresh meat	-	-	-	9 ozs.
Preserved meat	-	-	-	3 ozs.
Sugar	-	-	-	1½ ozs.

1 compressed meat ration was also carried.

The Press.—The correspondents always published the position of the camps of the larger units in the evening papers, which must have simplified matters for both sides. The great liberty of the Press in this respect shows that, in case of war, the Belgians and their allies might have great difficulty in keeping their dispositions out of the papers, unless a rigid press censorship were instituted.

FRANCE.

PART I.—ARMY MANŒUVRES.

The Army Manœuvres took place from the 15th to the 18th September near La Palisse in the ancient province of Bourbonnais.

STRENGTH AND COMPOSITION OF THE OPPOSING FORCES.

The troops engaged were :—

White Army :—

XIIIth Army Corps (General Goiran) :—

25th Infantry Division.

26th

13th Cavalry Brigade.

13th Artillery Brigade.

Lyon Régionale Brigade :—

2 Zouave battalions.

2 Line Alpine battalions.

Blue Army :—

XIVth Army Corps (General Robert) :—

27th Infantry Division.

28th

14th Cavalry Brigade.

14th Artillery Brigade.

Chasseur Brigade :—

7 battalions.

6th Cavalry Division :—

5th Cuirassier Brigade.

6th Dragoon Brigade.

15th and 16th Batteries of 6th Artillery Regiment.

The total number of troops engaged was about 55,000.

Infantry regiments had 3 battalions, and battalions had 4 companies. Companies were about 160 strong, of whom 60, on an average, were reservists.

Each artillery brigade had 3 batteries (H.A. 2 only). Each battery horsed 4 guns and 4 wagons, the former with 6 horses, the latter with 4. The minimum of horses per brigade was 225. There were about 75 men per battery with no reservists.

Cavalry regiments had 4 squadrons, each about 90 to 100 strong. They also had no reservists.

COUNTRY.

The country was decidedly difficult. It was very hilly and intersected with hedges and with barbed wire. Roads were few. There were no wide fields for artillery; shock action for cavalry in large bodies was impossible, and the country was not easy for infantry to cross.

Even for horsemen in twos and threes it was hard to get about, for the majority of the fences, though jumpable, were fortified by strands of barbed wire.

Infantry, on the other hand, were able to keep out of sight and approach very near to a position before exposing themselves, and could move unobserved from one flank to another.

It was also as difficult country as the dirigible is ever likely to have to explore, since the balloon had to be almost vertically over some of the valleys before the observer could see what they contained.

NATURE OF THE OPERATIONS.

The following was the scheme :—

General idea.—A White army is south-east of Bourges, a Blue army is north of Chalons. There are considerable Blue forces at the entrenched camp of Lyons.

Special idea, White.—The White army will move east, north of the line Moulins, Bourbon-Lancy, Montceau-les-Mines. The 13th Corps will march on Digoin and cover the army from any attempt directed on it from the Lyons direction.

Special idea, Blue.—The 14th Corps coming from Lyons is ordered to cross the Loire at Roanne and attack the right of the White army.

The scheme was rather less simple than usual, for there was a probability of Blue having to make a complete change of direction of march and no one could tell exactly where the collision would occur; all depended on the respective rate of marching of the two forces. As the director also reserved to himself the right to transfer the "Régionale Brigade" from one side to the other from day to day a further possible complication presented itself. As a matter of fact the "Régionale Brigade" was not transferred until the last day.

The 6th Cavalry Division reached Montcombroux at about 8 a.m. on September 15th. At about the same time the "Régionale Brigade," which had been pushed forward to cover the crossing of the Besbre by the 15th Corps, reached Sorbier, occupied the east side of it, and halted. The G.O.C. the cavalry

realising this, swung south-west and occupied the passages of the Besbre behind the regional brigade, but more White infantry coming up, he was forced to retire eastwards.

September 16th. This day saw the two forces gaining contact all along the line, but without being seriously engaged except for a White detachment of 5 battalions and a battery of artillery which advanced to Choux to draw the enemy west. The enemy was not to be drawn, so the detachment assumed the offensive and pushed on fighting to the east of Lodde.

September 17th. The early morning saw the 13th Corps at Sorbier and Montcombroux with its advanced detachment at Barraix-Bussoles, and the "Régionale Brigade" at Bert. The 14th Corps was compactly disposed on the line Droiturier-Montaignet Chez-Coulon. The former received orders to hold at all costs the line Sorbier-Liernolles, whilst the latter was told to assume an energetic offensive.

Battle was joined on the line Montcombroux-Donjon, the two divisions of the 14th Corps attacking simultaneously, while the Chasseur brigade and cavalry division tried to outflank the enemy's left. This enveloping movement was met by a crushing counter-attack made by one of the White divisions, and the Chasseurs were driven back.

September 18th. The "Régionale Brigade" was transferred to the Blue army, which attacked the White army on the line Sorbier-Liernolles while making its principal effort on the right with the "Chasseur" brigade closely supported by the "Régionale Brigade."

METHOD OF CONDUCTING THE MANŒUVRES.

The Director of the manœuvres was General Tréneau.

The headquarters of the Director was at Lapalisse, where commanders of forces sent copies of their orders before 5 p.m. daily. They were enjoined to consider the Director as the general commanding the army of which their corps formed part, and to send to him all such communications as would normally be sent in those circumstances. This was ordered with a view not only to keeping the Director informed of all movements, but also to putting the field communications to the test.

The manœuvres were not really continuous but were suspended about 5 or 6 p.m. and resumed at daylight. The preliminary instructions laid down that special permission for night operations had to be obtained from the Director.

A circular was issued by the War Minister shortly before the manœuvres, giving a general instruction on the conduct of

operations on a large scale. The following is a précis of the circular :—

“My predecessors have frequently insisted on the importance of setting simple and definite schemes, and also of leaving the greatest possible freedom to the officers commanding sides in order to cultivate their judgment and power of deciding for themselves.

“I desire once more to impress these principles and at the same time to point out a danger which must be avoided.

“A tendency is abroad to organise operations on a very large scale and of great duration, which might sometimes find their parallel in war but which in peace are out of proportion to the number of troops and the time available.

“Furthermore, this mode of procedure has the additional disadvantage of being actually harmful to proper instruction. It entails long marches before contact is obtained and has the consequent failing of shortening the subsequent operations and the fight proper, the rational and methodical development of which must always remain one of the chief objects of manœuvres. It must not be forgotten that the period of manœuvres on a large scale is short when troops of all arms, with fairly large effectives, can manœuvre with comparative freedom over all sorts of ground and in a series of operations having a rational sequence. So it is of the highest importance to waste not a moment of this time and to restrict the operations as far as possible to tactical movements.

“Reconnaissance of the enemy's movements, the choice of the best direction and manner in which to attack him in the most favourable fashion, the employment of ground, and the utilisation of the reserves will afford quite sufficient subjects of study for the commanders of sides without leaving the realm of tactics.

“As for the troops their instruction will thus be also assured in the way most calculated to bear fruit.”

At the final conference General Trémeau referred to the difficulty of the ground and stated that the troops must learn to fight in every kind of country. He also explained that in order to give freedom of manœuvre it was necessary for the opposing army corps to be at least 60 kilometres ($37\frac{1}{2}$ miles) apart.

Umpiring.—The complicated system of reducing fire effect to mathematical expressions, which was tried last year (*see* p. 37, “Report on Foreign Manœuvres, 1908”), was abandoned at these manœuvres. So also was the endeavour to indicate artillery targets by means of electrical projectors, since these were not found satisfactory owing to the impossibility of aiming the projector with sufficient accuracy.

The only orders given to the umpire staff were a simple set of instructions. In these it was impressed on them that their duty was to keep the operations as near reality as they could, to inform units of the nature and volume of fire under which they were, and to see that they acted accordingly.

In forming an opinion of the way in which umpiring is carried out in France one most important point must not be forgotten. This is that umpires, as far as possible, avoid taking any action which will curb the spirit of dash and forward movement. This spirit is carefully cultivated in France. The French officers say that if men are being constantly stopped

by umpires they will end by believing that advance under fire is impossible or nearly so, whereas they desire the troops to believe that *nothing* is impossible to brave men. Bullets will stop men soon enough, and the troops do not need the further discouragement of being taught throughout their brief peace training that they must halt directly they come under heavy fire or within close range of the enemy.

A few details were given in the instructions as to putting troops out of action and stopping the march of a column caught by the enemy's fire.

There was nothing at all vexatious or hampering in the instructions, but just an appeal to the tactical sense of the umpires, an exhortation to activity, and a reminder to the troops that they must bow to the umpires' decisions as they would to the fortune of war.

There were as usual very few umpires according to our ideas. The chief umpire with three field officers operated from the headquarters of the directing staff. With each army was an umpire staff of 1 general of division, 2 generals of brigade, and 15 other officers. With the cavalry was a general officer and 3 cavalry officers.

To each group of umpires was attached a small staff providing means of communication.

The chief umpire had a motor-car, a motor-cyclist and 3 cyclists.

Each army group had a motor-car, 3 motor-cyclists and 4 cyclists.

The cavalry group had a motor-car, 2 motor-cyclists and 2 cyclists. Besides these a troop of cavalry was divided up among the different groups.

Telegraphic communication was also provided for the use of the umpire staff by means of a number of field telegraph lines running at right angles to the general front of each force and in communication with the chief umpire at a central station.

Every day the Chief Umpire, General Pau, divided the probable scene of operations into zones, each of which was placed under a general of brigade. Some of the assistant umpires were attached for the day to definite units and were in telephonic communication with the brigadiers, who had in their turn to report to a central post which forwarded the information to Generals Trémeau and Pau.

This system worked fairly well, although occasionally a junior umpire caused delay by refusing to give a decision and by referring the case to his superior. Decisions affecting the larger units (regiment of infantry, brigade of artillery, &c.) were referred to the Director of Manœuvres for confirmation.

Units experienced the usual difficulty of knowing when they were under artillery fire. At the final conference General Pau referred to this matter and suggested that the artillery commanders on both sides should be able to communicate with each

other. It would then be possible for, say, the Blue artillery commander to tell his opponent, "Your battery in such and such a position is under fire." He also suggested that umpires should be instructed, whenever they heard hostile artillery fire, to inform the unit which they accompanied that it was under artillery fire.

REMARKS.

The Three Arms Combined.—The staff work was very good. There was no fuss, no galloping staff officers, in spite of the lack of means of communication. The way in which large units were moved—for example, the counter-attack of the 26th Division on the 17th September—was admirable. Full advantage of the undulating country was taken, and masses of men were moved across country without the knowledge of the enemy. The combination between the three arms varied to a marked degree in the two corps. In the 13th, the commander of which was formerly a gunner, the combination between artillery and infantry was most noticeable, while with the 14th corps the artillery often failed to support the infantry. The cavalry did not seem to work in harmony with the other arms, but this was probably due to the difficult nature of the ground which was more suited for fire than shock action, whereas the French cavalry have an apparent dislike to dismounted work.

In all the schemes and discussions great importance was attached to the necessity of a general forming a "manœuvring mass." General Robert was criticised by General Trémeau for his failure to form such a mass in the operations of the 17th. On the other hand, General Goiran, who had 2 divisions and 1 brigade of infantry, retained a whole division which he moved from the centre to the left to make his counter-stroke. The decisive attacks were always driven home by artillery and numerous lines of infantry.

There seems a tendency in France to allow for an army corps a slightly greater frontage than has hitherto been considered safe.

In the march orders of the 14th corps the different columns were kept in hand by making them pass given lines at stated times. Generally speaking, orders were rather long and detailed, especially the administrative parts.

Infantry.—The great interest of this year's manœuvres lay in seeing how the French infantry worked in a somewhat enclosed country which was more or less new to both corps. The reports received from the various officers attending the manœuvres differ in their conclusions. Some consider that the leading of officers and non-commissioned officers was not good, whereas others are loud in their praises of the initiative and intelligencé displayed. On the whole, the majority of the reports seem to point to the fact that the French infantryman

does not receive as good an individual instruction as our men, has not the same idea of the effects of the modern rifle, and, doubtless owing to his uniform and heavy equipment, is not nearly so quick. On the other hand, it is agreed that the handling of battalions or larger units by their respective commanders was excellent.

The section is becoming more and more the tactical unit (it must not be forgotten that the French section is twice the strength of our own). The captain nowadays, instead of commanding one unit, commands four. This system allows great flexibility and gives free scope to initiative, but it demands a high standard of intelligence and training on the part of the section leader, and, as hinted above, some of the latter have not yet reached the required standard.

There was no normal system in the infantry attack, but every leader adopted the formation which he thought best. The most usual formation for the advance up to effective ranges was lines of half-company columns in fours or sections in file. This enabled the companies to take full advantage of existing cover and also facilitated the passage of such articles as hedges and barbed wire. In this connection it may be noted that a company or larger unit always reconnoitred beforehand by scouts the country over which it was to move, and the leader in consequence at once made for the best concealed approaches.

During the advance companies and sections were careful to cover their front or flanks by scouts, but the latter did not always push far enough forward or study the ground. As is sometimes the case with us, they seemed to consider themselves bound to maintain a definite distance from their units. For the advance in fire-swept zones, extensions were generally not more than one or two paces, although instances of four paces between men were seen. Rushes of about 40 yards were usually by sections, but the pace was slow and the men were awkward in rising or lying down. Gradual advance by pairs of (or single) men were sometimes witnessed, either from one flank or from the centre. Skirmishers usually worked in pairs. Very little attention was paid either to supporting or converging fire, nor did the sections always take full advantage of cover. There was a tendency for the men to crowd behind hedges which did not afford protection except from view, and to fire, standing, through the gaps.

The fire position was usually well selected, and the firing line carefully built up. The actual assault was carried out by dense masses, but at a slow pace to the accompaniment of bugles and even bands. The regimental colour was unfurled and was carried forward in the charge.

After the assault units were reformed with great rapidity when no further advance was contemplated. But occasionally

the retiring enemy was pursued by dense lines in which units were much mixed up.

As a typical example of an infantry attack the following case may be cited. Three regiments were ordered to make the main attack on the enemy's flank. The leading regiment detailed one battalion to act as a pivot for the attack and to support it by covering fire from a range of about 1,000 yards. The 2nd battalion deployed on a front of half a mile, while the 3rd battalion followed, in lines of sections in file, at a distance of 200 yards. The 2nd regiment, in line of battalion columns, followed at a distance of 600 yards, and the 3rd regiment was kept in reserve at about 800 yards behind the 2nd.

In the defensive a great depth, although not to the same extent as in the attack, was the rule. In one instance a regiment of 3 battalions was allotted a frontage of 1,000 yards. The 1st battalion occupied an advanced position some 300 yards down the slope of a hill, the 2nd was entrenched on the crest line, while the 3rd remained in reserve behind the hill. This last battalion finally executed a "*retour offensif*" when the enemy had reached the crest of the hill. In another case a regiment held a line of only 700 yards.

It was noticed that occasionally infantry took up a position rather drawn back from the crest line, even at the expense of leaving dead ground in their front. This may have been done in order to gain a good run for the "*retour offensif*" which was usually made.

Fire Discipline.—Both in the attack and defence fire was seldom opened at any range much over 800 yards. The fixed sight, which is 400 metres, can be used up to 600 metres, but as a rule it was observed that the men adjusted their sights for ranges over 400 metres. No range-finders were used, the distance being judged by the officers. On one or two occasions volleys were employed, but it was explained that this was only in order to economise the manœuvre supply of ammunition. The usual method was individual firing, the number of cartridges (generally 2 or 3) being ordered by the leaders, who defined the target, if not easily seen, by its relative position to some other prominent feature. Prior to the assault there was no limitation and fire was very rapid. The men did not take much trouble to aim; in fact, some fired without bringing the rifle to the shoulder. But the most rapid fire was quickly stopped by the blast of a whistle, and the men were always well under control.

The Zouave battalions fired while advancing to the attack, but no other infantry units were observed to employ this practice.

Entrenching.—Not many instances of infantry entrenching were witnessed. On a few occasions a section constructed a line of trench with their portable tools which were of the old pattern. They were difficult to work with although the soil

was easy. Little attempt to conceal the parapet was made as a rule, and the trench was not very elaborate, about $1\frac{1}{2}$ feet deep. No head cover or traverses were constructed. In some cases the men used their knapsacks as head cover, and although these undoubtedly protected them they were very conspicuous. No instance of infantry entrenching during the attack was observed.

Infantry Mounted Scouts.—The 54th and 55th Brigades and the Zouave corps were provided with mounted scouts. Each line regiment had 4 N.C.O.'s and 8 troopers, each Chasseur battalion 2 N.C.O.'s and 3 troopers, and the Zouave corps 3 N.C.O.'s and 5 troopers. Of these only $\frac{1}{4}$ to $\frac{1}{3}$ belonged to the active army, the remainder being reservists up for training who in many cases rode their own or requisitioned horses.

This means of providing scouts has solved the question of the drain on the cavalry which the mounted scouts presented.

The men had done 15 days' training with their own (cavalry) regiments beforehand and only joined the infantry just before the manoeuvres. Cavalry commanders were thus able to select men who, though not good cavalry soldiers, were quite fit for this work.

These scouts were most valuable. They not only saved the infantry a great deal of hard work and prevented their being squandered, but also helped very materially to minimise the risk of surprise.

Marching.—The march discipline was very good. The men rarely straggled and always kept well to one side of the road. When halted for more than a few minutes they piled arms and grounded their valises in a neat manner. The marching power of the infantry was, as usual, admirable. On the 12th and 13th September the "Régionale" brigade did 31 and 29 miles without a man falling out, and on the 15th followed it up by another march of 31 miles. Towards the end of the manoeuvres, however, some of the men began to show signs of exhaustion. On a few occasions battalions or companies left their valises behind and were sent off to support the cavalry, a duty which they carried out remarkably well. Sometimes in the attack, too, battalions were ordered to leave their valises.

Personnel.—In this connection the Military Attaché reports:—

"The men taking part were most of them Auvergnats or Savoyards, dirty folk, but very amenable to discipline. The few men to whom I spoke always returned intelligent answers, which spoke well for their instruction, as the above-mentioned races are distinguishable for their obtuse but retentive minds."

Cavalry.—There is little to mention concerning the cavalry in the manoeuvres. The country was not suitable to shock action, and the French cavalry do not at present take kindly to dismounted work. However, there were more instances of the

latter than usual. The 6th Cavalry Division dismounted a considerable portion of its strength to defend the line of the Besbre, and the cavalry of the 13th Corps defended a part of La Palisse on the 16th September.

The 6th Cavalry Division was certainly well handled on the 15th when it delayed the advance of the 13th Army Corps for some hours. But considering how superior in cavalry the 14th Army Corps was, more influence on the operations might have been expected from that arm.

Several officers call attention to the unpractical nature of the cavalry uniforms. The helmets of the dragoons and cuirassiers, the breastplates of the latter, and even the blue uniform of the light cavalry, are most conspicuous and must interfere with the efficiency of reconnoitring parties.

Artillery.—As mentioned on p. 42, the tactical training of the artillery was better in the 13th than 14th Army Corps. The close support which the artillery of the former corps afforded its infantry was very marked. Batteries pushed up quite close to the firing line and often arrived on a captured position five minutes after the assaulting infantry. It must be admitted, however, that they displayed a reckless disregard of rifle fire and were occasionally caught within 500 yards of the enemy's unbroken infantry.

Batteries were usually used singly and, on the defensive, were sometimes split up.

The fire positions were generally about 50–100 yards in rear of a crest, and the captain observed by standing on an up-ended wagon close to the guns. It was very rare to see the battery any distance from the crest, or the observing officer so far from his unit that a telephone was necessary. In a few instances batteries came into action in the open.

An artillery officer who attended the manœuvres reports :—

“The quickness with which guns were brought into action and fired struck me most forcibly. To a certain extent, deductions drawn from the manœuvres may be misleading, as there was a good deal of slackness—on one occasion shots would not have cleared the crest—and little attempt was made to follow the proper procedure. A very rough estimate of the range and the number of rounds of blank to be fired were usually all the orders that were given in action, while there was often no attempt to lay for direction behind cover. Apart, however, from time-saving that was due to peace conditions, the main factor that made for quickness was simplicity of procedure. For instance, in one case where the target was a broad one and accurate laying for direction unnecessary, the captain remained mounted behind the leading gun as it unlimbered under cover. Standing where he could just see the target over the crest the captain, from his horse, aligned the gun by giving the necessary directions to the man at the trail. The operation took a few seconds. Words of command appeared to be fewer and shorter than with us.

“Deflection and height of burst as well as the angle of sight are all expressed in *millièmes*—a *millième* being an angular distance equal to $\frac{1}{1000}$ th of the range.

"The corrector scale is marked in *millièmes*, and there is thus a direct relation between the corrector divisions and the angle of sight. A scale of *millièmes* is marked on the lens of the battery telescope—which also acts as a director; many officers have their field glasses similarly marked."

• The flash of the French gun is very bright and frequently betrayed the position of otherwise well-concealed batteries.

No artillery entrenchments were seen. There were rare instances of teams being badly placed behind the line of guns, but as a rule they remained on the flanks and behind cover.

The remarks in last year's report on the French manœuvres* as to the neglect of instruments for taking the range or the angle of sight were confirmed.

Although the horses appeared lighter than those of our field artillery, the pace at which batteries manœuvred left nothing to be desired. They moved across country with ease and crossed quite formidable ditches with an entire absence of fuss.

March Discipline.—In this connection an artillery officer reports:—

"The habit of keeping to the side of the road and leaving a clear space for the passage of troops, messengers, &c., was as constantly observed by the artillery as by the infantry. The regulations appear to be very emphatic in questions of march discipline. A carriage that had fallen out of its place in the column was never allowed to recover lost ground while the column was in motion. Again, when halted on the road, outriders' horses are always placed between the carriages and facing outwards.

"If it be required to reverse on a road too narrow to allow the limber (after unlimbering) to pass to the other side of its gun, each limber is keyed up to the gun that was in front of it before the carriages were reversed. The gun which is now left at the head without a limber requires to be man-handled until a broader space is reached."

Communications.—This year artillery brigades had a field telephone which enabled the brigade commander to communicate with his batteries. In this equipment, which is carried by two men on their belts, the receiver and transmitter are separate. The transmitter, when in use, is hung on the top of the "earth" which consists of two rods. One rod fits into a socket in the top of the other, and one or both are used according as the operator sits or stands. The wires near the terminals are covered with leather for a length of about 3 feet.

The receiver is about 3'' in diameter, the transmitter is larger—about 6''—and the face is covered with a flat metal disc pierced with 20 or more holes. The wire is carried on a drum—8'' long and 4'' in diameter—which is provided with a handle.

This telephone, so far as was noticed, only linked the batteries of a brigade. There seemed no means of communication, other than orderlies, with the General Officer Commanding Corps Artillery.

* See p. 47, "Report on Foreign Manœuvres, 1908."

Orderlies or special officers were detailed occasionally to obtain information of the infantry. The only signalling observed was by semaphore, but this was not frequently used and the rates of sending were slow.

Observation Ladders.—Observation ladders were occasionally used. The ladder consists of two lengths, one lying over the other when not in use, and connected by two guide bands. When drawn out the ladder is about 6 feet long. It is without table or rests—simply rungs and sides. When in use the foot of the ladder rests on the rear end of the wagon, which is up-ended and is prevented from slipping to the rear by the brake bar. The top of the ladder rests against the perch (which is not folded down) of the wagon, and two staple hooks on each side of the ladder fit into the handles on either side of the perch.

The ladder was simple and appeared to be efficient, but, unless the background were carefully chosen, it rendered the observing officer an extremely conspicuous object from the front.

Engineers.—As usual at French manœuvres there was little work, beyond telegraphy, for the Engineers to do.

An officer makes the following remarks on the subject:—

“No bridging or water-supply work was seen, nor were any localities put into a state of defence. Some fire trenches were got ready by the sappers for occupation by the infantry on one occasion, but these did no credit to their designer, being merely shallow trenches in which the men could neither stand nor kneel under cover, with shapeless parapets which were not even bullet-proof; no attempt had been made at concealment, and, sited as they were on the forward slope of a hill in the middle of grass fields, these so-called defensive works offered a magnificent target to the enemy's artillery, while providing the minimum of protection to the men holding them.”

Machine Guns.—At present every infantry regiment has two machine gun sections, each of 2 guns, but it is intended to allot eventually a section to every battalion. All cavalry regiments have a machine gun section.

The *Puteaux* machine gun was described on pages 48, 49 of the “Report on Foreign Manœuvres, 1908.” The following further details are of interest.

In Marks 1 and 2 guns the radiating gills for cooling the barrel have been abolished and replaced by a sleeve of composite bronze. In Mark 1 the recuperating spring is wound round the barrel and covered with a light metal jacket; in Mark 2 the spring is placed obliquely on the right-hand side under the barrel.

The blank firing attachment consisted of a solid steel stopper screwing on to the muzzle and pierced with an aperture about the diameter of a knitting needle. It was apparently made in haste for the manœuvres. The tripod is jointed, somewhat like the stand of a photographic camera, and it can therefore be used

by a man lying down or kneeling. The rate of firing, which may be from 100 to 600 rounds a minute, is controlled by a lever.

Each gun, when mounted, can be conveniently carried by two men and can be put together in less than a minute. It is unloaded from the pack mules under cover and carried into action by hand.

An ammunition mule carries 6 boxes, or 1,800 rounds in all. This year each section had only one ammunition mule. The cavalry gun carriage can carry 3,000 rounds.

Machine guns were employed to a great extent this year. Their action was characterised by great boldness, and the sections did good work in supporting the infantry. But, like the artillery, they displayed a reckless disregard of the effects of infantry fire and often took up impossible positions in the firing line of the attack.

The section commanders showed considerable initiative in the handling of their units, and also skill in taking advantage of cover. But the vivid flash of the gun rendered concealment difficult. In the cavalry the machine guns were freely employed as pivots of manœuvre in the same manner as the horse artillery.

Guns were, as a rule, used in pairs—in one or two instances singly. No case of the massing of the regimental sections was seen.

Range-finders were carried but practically never used.

Fire was seldom opened at long ranges. French opinion considers it a mistake to attempt to use machine guns at ranges above 1,200 metres, since at long ranges it would be impossible in most European countries to judge where bullets were falling and thus to obtain the range accurately enough to justify the expenditure of ammunition.

In fact, it was noticed that on the defensive, in spite of tempting targets, fire was reserved until medium or decisive ranges, the idea being to overwhelm the enemy by sudden bursts of rapid fire.

Communications.—The French army is still, in comparison with ourselves, badly equipped with methods of communication, although there was an improvement this year. A certain amount of discussion is taking place in the press on this subject, and probably a great extension of means of communication will be witnessed in the near future. The more conservative portion of the army is, however, by no means in favour of a better system as it is argued that improved communications will lead to interference on the part of the higher commanders and a consequent decrease of initiative on the part of the subordinate ones.

The Alpine regiments frequently employed their acetylene lamps, which are for both day and night signalling. It was noticed, however, that the signallers have the bad habit of not

waiting for the end of a message or word but send the "answered" when it is half way through.

- Most units made some attempts to use semaphore signalling. For this purpose infantry regiments had the following signallers:—

Regimental Commanders	6
Battalion	8 (2 from each company)
Company	5
Section	1

The semaphore signalling was slow and the signallers often stood well in the open in full view of the enemy.

Some of the cyclists carried semaphore "wings" consisting of strong wire frames hinged at each corner so that they can fold up and be easily carried. The frames are covered with linen, white on one side and red on the other, and the size is about 24 inches long and 10 inches broad.

It was reported in the Press, and confirmed by a Staff Officer, that certain infantry regiments had been given a field telephone with $2\frac{1}{2}$ miles of cable. Unfortunately nothing was seen of this equipment.

As mentioned on page 47 artillery brigades had a telephone.

There were five sections of air-line telegraphy allotted as follows:—

2 sections	-	-	-	Directing Staff.
1 section	-	-	-	Umpire.
1	-	-	-	Each Army Corps.

- The cable was laid along the hedges and banks by the roads, while at crossings either poles were used or trenches were dug and the wire buried. The rate of laying was slower than with us.

- **Wireless Telegraphy.**—Wireless telegraphy was used to connect the Director with the two corps commanders. The Director had at La Palisse the balloon wireless equipment described on page 52 of "Report on Foreign Manœuvres, 1908." It was blown away on the evening of the 16th September.

A wireless telegraph motor was in use during these manœuvres. The car has removable sides and is divided into two compartments. The dynamo (3-5 h.p.), the receiver and the manipulator, are in the back of the car. The mast, formed of about 6 tubes fitting into each other, is some 65 feet high, weighs with fittings 175 lbs., and takes 6 minutes to erect. From the summit hang 5 wires, 4 running to the earth and the fifth joining the apparatus in the car. The dynamo is worked by the 22 h.p. motor of the car. It is said to have a radius of action of 100 miles.

There was also a field wireless telegraph unit with a personnel of—

1 Lieutenant,
3 N.C.O.s,
18 men.

In this equipment the mast is about 65 feet high and is in 4 sections. Each double section is held upright by 4 guys. The equipment is carried on three 3-horse wagons, one for dynamo (3 h.p.) and benzine motor, the second for receiver and transmitter, and the third for masts, spare parts, &c.

The officer in charge of the wireless telegraph motor stated that communication was much interfered with when guns were in action close by.

Supply.—The arrangements did not differ materially from those which obtained in former years. The 13th Army Corps was based on the "*station-magasin*" of Auxerre and the 14th on that of Lyons. "*Gares régulatrices*" were established for the 13th Corps and 6th Cavalry Division at Moulins and for the 14th at St. Etienne, the intendant in charge of these stations acting as the commandant of lines of communication. The "*gares régulatrices*" forwarded supplies by the ordinary train service to the "*gares de ravitaillement*" or supply railway stations.

For the 14th Corps, convoys of motor lorries brought the supplies of bread, groceries, &c. from the latter to "supply-centres" where the regimental wagons met the convoys. It was laid down that the maximum distance between the "supply railway-stations" and "supply-centres" was never to exceed 50 kilometres (30 miles). The motor convoys as a rule loaded up in the evening and started early the following morning, and the transfer of supplies to the regimental wagons had to be completed before 1 p.m.

The motor cars maintained an average speed of over $7\frac{1}{2}$ miles per hour and performed their work satisfactorily. They were hired for the manœuvres.

The 6th Cavalry Division was also partly supplied by motor transport. Supplies were forwarded by train from Moulins to Digoin which became the "*gare de ravitaillement*." The motor convoy filled up in the evening from the trains and received by telegram from G.O.C. division a point of rendezvous whither the regimental trains were sent.

In order to stimulate the construction of a motor vehicle suitable for army needs, subventions will next year be given to the makers of such lorries, and £72,000 will be included in the estimates for this purpose.

As regards the distribution of supplies, the troops received every evening bread, groceries and oats for the whole of the following day, while meat, forage and wood were issued for that evening and the following morning.

On the 14th meat, which had been killed and half salted on the 10th, was issued as an experiment to a brigade. The meat was in excellent condition. A trial issue of fresh meat was made one day from Noanne to the 28th division. The meat was killed in the morning and issued to all the units, including the outposts, some 28 miles off, by 10 p.m. For the transport of this meat a motor lorry (Berliot chassis), specially

designed and capable of carrying 49 cwt. was employed. There were also two auto-buses, hired from the Paris Omnibus Company and each carrying $29\frac{1}{2}$ cwt.

The meat was usually killed in the corps "*abattoirs*" and forwarded direct to the units, either by the above-mentioned meat-motors or by ordinary transport. The cattle were purchased locally by the intendance, and the "*abattoirs*" were usually near one of the "*gares de ravitaillement*."

Transport.—The following was the scale of transport:—

Infantry Regiment—

Head Quarters—

- 1 2-horsed ambulance.
- 2 1-horsed medical carts.
- 2 2-horsed meat wagons.
- 1 2-horsed baggage wagon.
- 1 2-horsed ammunition wagon.

Per Battalion—

- 2 2-horsed Supply wagons.
- 1 2-horsed baggage wagon.
- 1 2-horsed Canteen wagon.

Per Company—

- 1 2-horsed Company wagon.

Artillery Brigade—

- 3 2-horsed Supply wagons.
- 1 2-horsed Meat wagon.
- 3 6-horsed G.S. wagons.
- 1 1-horsed Medical cart.
- 1 2-horsed Canteen wagon.

Cavalry Regiment—

- 5 4-horsed forge wagons.
- 1 1-horsed ambulance wagon.
- 1 2-horsed meat wagon.
- 5 2-horsed supply wagons.
- 1 2-horsed canteen wagon.

Infantry battalions and artillery brigades had in addition locally hired vehicles as water-carts.

It was noticed that some of the regimental transport had distinguishing flags.

Balloons.—The dirigible "*La République*" was employed during the manoeuvres, and as this was the first occasion on which an airship had been put to this test its performances aroused much interest. It was attached to each army corps on alternate days, although it was kept at La Palisse.

Its shed, made of a steel frame and canvas, was erected in 48 hours. The uprights and frame of roof consisted of steel lattice girders anchored by thick steel ropes to deeply buried holdfasts. To give rigidity to the sides, 1-inch steel ropes were passed through pockets at vertical intervals of 4 feet and each

end hooked to the uprights. The size was 70 metres long, 16 broad, and 20 high.

Each day the dirigible was out for 3 hours and covered about 50 miles in that time. She carried a crew of 5 including the observing officer.

The best performance was on the 17th September, when the airship was attached to the 13th Corps and sent to General Goiran full details of the dispositions of the 14th Corps, thereby enabling the General to make a successful counterstroke.

For manœuvring on the ground, the dirigible had 4 permanent ropes, two in front and two aft. Each rope had 4 "toggles," each of which was held by 4 men. In addition there were other ropes running through rings on the frame above the car. To one end of each of these ropes a thin long line was attached. When letting go, the end of the rope with the thin line was pulled through the ring and both ends of the thin line were then made fast to the side of the car, thereby enabling a fresh rope to be pulled through the ring when required.

The following is an extract from the report of the Military Attaché dealing with the performances of the "République."

"The balloon was used for the work of reconnaissance, sometimes on one side sometimes on another. The only condition laid down was that it should remain at a height of 2,500 feet. This, in my opinion, it did not do. Its work at manœuvres was more as a test of equipment, garage and park outfit than for the work of reconnaissance. There is no doubt of the ability of dirigibles to effect good observations; whether they will be easily brought to the ground is another question. In my opinion the gun will be more than lucky which hits one, for they move quicker than any target gunners ever have to deal with, and their course is very easily changed. Rifle bullets will, of course, hit them, but it is doubtful whether they will bring them down quickly enough to impair their utility. If a balloon has located the whole of the masses of the enemy and reported their position, it does not much matter if it be laid up for a day or even longer. It will already have performed service of incalculable value. That such information can be readily secured was proved by the 'République,' and it does not much matter to her if she be 2,000 or 4,000 feet up. In peace high altitudes are not sought, for they mean loss of hydrogen and consequent expense. The transmission of information gathered is another question, and here a fine field is open to inventors. The 'République' sent her messages in by sailing low over the troops near where she knew the Commander to be and dropping a small bag of ballast with the message inside it. Such procedure should certainly be carried out in duplicate, for a bag might easily be lost."

On its return from the manœuvres, the "République" met with an accident which caused the death of the crew and the destruction of the airship.

Railway Arrangements.—In order to test the railway facilities of the country, the railway commissions and authorities were given very little time to elaborate a programme of troop trains at the end of the manœuvres. They were merely informed that the troops would entrain in the area bounded by Moulins—

St. Germain des Fosses-Roanne-Paray, so that the necessary rolling stock might be collected. They were also told that the 13th corps would use the line Moulins-St. Germain, and the 14th corps the lines Moulins-Paray and St. Germain-Roanne. Further details were not communicated until late in the afternoon of the 18th September, but by that night the Railway Commission at Moulins had made all the necessary arrangements for the transport of the troops without any interference with the regular train service which, owing to the vintage, was especially heavy at that time.

On the 19th September some 50 trains of 1,500 vehicles (including 300 passenger carriages), and containing about 35,000 men with 1,000 horses, were despatched to Lyons, Grenoble, Chambéry, Avignon, &c. On the 20th followed the staffs, telegraph units, automobiles, &c.

The arrangements worked admirably, and the railway authorities were thanked by the Minister of War for their work.

Foreign Officers.—The foreign officers were unable to see much of the operations. They were lodged so far away that a motor drive of 2 to 2½ hours was necessitated every morning before reaching the ground, and they were told to assemble at 11.30 for the return. Thus they had 5 hours drive for about three hours of the manoeuvres, and it was most vexing to have to leave just as things were becoming interesting. Besides, this year operations did not stop at a given hour, as they usually do, and there was interesting work done up to 3 or 4 in the afternoon.

The foreign officers were, however, allowed this year to be present at the final conference.

FRANCE.

PART II.—MEDICAL REPORT ON THE FRENCH ARMY MANŒUVRES, 1909.

The French Army Manœuvres in Bourbonnais were followed mainly for the purpose of observing the manner in which the sanitary conditions of an area, where troops are billeted or cantoned are dealt with, and also in order to note any tests which might be made with respect to the new organization proposed for the field medical service in France. The amount of fatigue endured, the method of dealing with actual sickness amongst the troops, the arrangements for feeding, the nature of the food supplied, and the method of housing troops were also of interest from a medical point of view.

Sanitary Reconnaissance of the Manœuvre Area.—

The extent of the manœuvre area was approximately 2,500 square miles, with about 300 large villages or towns and numerous small hamlets, farms and country houses scattered over it. It was traversed by several streams and rivers and was generally hilly and well-wooded. A month previous to the commencement of the manœuvres medical officers from the garrisons of Moulins, Clermont-Ferrand and elsewhere in the 13th Army Corps region, were appointed to go over the ground and report upon the sanitary conditions. For example, the medical officer of the 30th Dragoons stationed at Moulins had to make reconnaissance of the villages from Moulins southwards as far as St. Yorre, on the Allier, south of Vichy. He had 59 villages to inspect, and the time spent in this reconnaissance was 15 days. The points noted in his report were the existence or otherwise of infectious disease; the condition of the wells; the extent to which villages were under local sanitary control; whether the village possessed public latrines or similar conveniences in public buildings, as for example, in government schools; the existence of laundries or other public washing places and abattoirs; the general condition of public buildings; the names and addresses of local medical practitioners, and, in fact, any information which might be of use either in preventing or dealing with sickness during the manœuvres.

With regard to investigations into the presence or otherwise of infectious disease, the inspecting medical officer got in touch with the local medical practitioners, the mayor of the village, and the gendarmerie. The most prevalent diseases were measles, scarlet fever and enteric fever; and the recent and remote history of the villages with regard to these was investigated, as well as the extent to which infected houses had

been disinfected. On the information collected on these points the medical officer determined whether the whole village, or portion of the village, or only individual houses, should be put out of bounds. The village of Neuilly, for example, in the north of the area, had several cases of measles, and had previously suffered from an epidemic of scarlet fever, the last case being of recent date. Further, many of the houses where the cases had occurred had not been disinfected. It was accordingly noted as a village to be put out of bounds. St. Yorre is another example of a village with an unfavourable report. Not only were scarlet fever and measles prevalent, but there had been outbreaks of enteric fever in it every year since 1903. It was noted as a village specially to be avoided.

In examining the condition of wells, no chemical or bacteriological analyses were made by the inspecting medical officer; but he noted the position of wells with reference to surroundings, the possibility of their being contaminated, how far they were protected by steining, covers, &c., and especially whether the water was drawn by rope and bucket or by pump. Wells with pumps were noted as the most suitable for use by the troops. Suspicious wells would be put out of bounds. For example, a well in connection with the girls' school at St. Gerrand le Puy was suspected of receiving soakage from the latrines. This was specially noted and the troops warned.

The object in noting the existence or otherwise of local latrines was to determine whether troops occupying the villages should be required to construct trench latrines (*feuillées*) for themselves in the adjoining fields or not. In the larger villages latrines existed in connection with the boys' and girls' schools. It was the time of the school holidays, and, in fact, the schools were the chief sources of accommodation and conveniences of this kind. Although in the absence of public latrines such as these, trench latrines were to be used, there was little evidence of any provision being made to prevent the men going where they liked; and open fields, woods, the neighbourhood of streams and ponds, were used by them indiscriminately on the line of march during the periodic halts.

Sanitary Measures during Manœuvres.—During the actual progress of the manœuvres all measures of sanitation were left to the troops themselves under the supervision of the regimental medical officers, to whom the reconnaissance reports on the state of the villages were communicated. A daily report was submitted by the regimental medical officers to the principal medical officer of their division, and the latter only interfered in the event of exceptional conditions of ill-health being noticed.

Water Supplies.—The newspapers reported that there was a deficiency in water over the manœuvre area, but there

appeared to be no lack of water from wells, streams and other sources. Arrangements were made, however, to attach water columns to each battalion of infantry or similar unit. The intendance department invited the local farmers and peasants to bring carts and wine barrels of 132 gallons capacity, fitted with taps or spigots, for employment in connection with water columns during the manœuvres. Sufficient numbers were thus obtained without compulsory requisition. The barrels were fixed by rough carpentry work on the carts by the owners themselves, and paraded on the 13th September at the field headquarters of each army corps before being distributed to divisions and through them to units. The barrels were disinfected under the supervision of medical officers by burning sulphur inside them, and the water with which they were filled had to be approved by a medical officer specially appointed for the purpose.

The column of carts with barrels for the 13th Army Corps was observed paraded at Varennes-sur-Allier in the forenoon of the 13th September, where it was being told off to divisions, brigades and units. An intendance officer had labels attached to each barrel with the name of the owner and the unit to which it was assigned, and was sending the carts on to their destination in groups, each under an *officier d'administration*. Similar arrangements were made for the 14th Army Corps; and during the manœuvres water carts followed the regiments and battalions, although they were seldom seen with the first line transport. They appeared to be used more for the purpose of supplying water to the troops in the places where they cantoned for the night, rather than for the purpose of enabling the men to refill their water bottles during the work of the day. On the other hand, the battalion *cantinière* was ubiquitous, and it was at the *cantinière's* cart and from the cans of itinerant vendors of coffee that the men quenched their thirst at mid-day and other halts.

The number of water carts assigned to a division was 37 to 40, in the proportion of three to a battalion of infantry or 12 to a regiment. Each battalion had thus 396 gallons of water carried with it. A battalion during the manœuvres was about 750 strong; so that the amount allowed was somewhat less than $4\frac{1}{2}$ pints per man; or practically two fills of his water bottle. It was noticed that on the last day of the manœuvres the water carts were brought much nearer to the fighting line than on the previous days. The weather, however, was never hot or oppressive, and there did not seem to be any desire to drink either from the water bottles or other sources of water supply. No arrangements were made for the filtration or sterilization of water, so far as could be gathered, and nothing of this nature was observed. Water was in fact only used for cooking and for making coffee. The wine of the country and the itinerant coffee vendors supplied other requirements in the

way of drink. Not only were the *Cantinières* everywhere, but the soldiers crowded into village cafés whenever they had an opportunity, while lads on bicycles, carrying on their backs large tins filled with coffee, and women carrying pitchers full of water which appeared to be coloured either with permanganate of potash or red wine, moved amongst the troops apparently without restriction.

Billeting Arrangements.—It is unnecessary to report on these in detail. They were in no respect different from the arrangements observed during manœuvres in the Eure et Loir in 1900; if anything, the accommodation provided was somewhat rougher. For example, in Choux, a small hamlet of about half a dozen houses and farm sheds, a whole battalion was accommodated during the night. One shed was allowed for a section, or about 50 men. Abundance of clean dry straw was used for the men to lie on.

Food Arrangements.—Each battalion had its supply carts following in close proximity to its movements. The bread supplies were baked in the military bakeries of the army corps and were distributed, together with other regular rations, such as coffee, spices, bacon and lard, from the base dépôts to Moulins and St. Etienne, which were the places selected as *gares régulatrices* of the respective corps. From there the supplies were sent to regimental supply posts, the position of which varied from day to day, and was published in army corps operation orders. At these posts the regimental supply officers (*officiers d'approvisionnement*) took them over from the intendance. In the case of the 13th Corps, the transport of supplies to the regimental supply posts from the advanced dépôt was by rail, in the case of the 14th Corps by mechanical transport. The co-ordination of transport supply with the work of sending casualties back by the empty vehicles was not practised. In fact the field medical arrangements of lines of communication and work of evacuation were not carried out or tested.

The meat supply was of two kinds, tinned beef and fresh beef. The former was carried on the soldier's pack, a tin of apparently two pounds capacity being carried by every fourth man. It was used on one day of the manœuvres, the 17th September. The meat was very palatable. Vinegar and vegetables were purchased locally by the battalion supply officer who has a sum at his disposal for purchase of such articles, and they were used to make a beef salad with the tinned beef. The soldiers appeared to relish these salads exceedingly. The addition of vinegar aided the digestion of the fibre of the beef which, like most tinned beef, was somewhat course and "stringy."

The fresh beef was killed in military field abattoirs under arrangements made by the army corps intendance. The

details of the abattoir for a division of the 13th Army Corps were observed at Jaligny on the 17th September. The division was estimated at 10,000 men, and for it twelve oxen were slaughtered daily during the manœuvres. For each animal three butchers by trade taken from the ranks were allowed, and these men, under the superintendence of an intendance officer, formed the personnel of the abattoir. The time taken by a squad of three men to slaughter, clean and prepare a carcase for issue was one hour. The apparatus used for slaughtering was a leather face mask with a brow piece. A hollow steel rod, about 6 inches long and $\frac{1}{2}$ inch diameter, with sharp edges, was driven by one blow of a hammer into the skull through a hole in the centre of the brow piece, and the animal dropped at once. A long supple cane was then passed down the hole into the spinal column to destroy reflex movements in the limbs; and the process of removing the hide commenced at once, immediately after the jugular vein had been opened and the blood allowed to escape.

After being cleaned, the carcases are hung before issue to the troops for a minimum of twelve hours. All the apparatus required in the abattoir is carried in small boxes, of which there are five to a division, each containing a complete set of abattoir apparatus. Presumably, therefore, there are five squads of three butchers each as the personnel of a divisional abattoir, and 10 to 15 oxen would be killed daily for fresh meat.

The fresh meat is distributed to the regiments from the abattoirs direct; that is to say, the place selected as an abattoir becomes the "*gare de ravitaillement de viande*"; and the regimental supply officer sends the regimental meat carts there to refill. The position of this *gare de ravitaillement* is also intimated daily in corps or divisional operation orders.

Each regiment has two meat carts and one weighing machine which is carried in one of the carts. The carts are of special construction, tin-lined inside, with perforated tin panels for sides and back, and hanging hooks fixed inside to the top. The interior of those examined was scrupulously clean.

There were no sanitary arrangements at the place used at Jaligny as an abattoir. A small area of grass with a few trees by the side of the river and adjoining the main road was selected; the ground soon became covered with cow dung, blood and offal, without any apparent attempt at keeping the place clean. As these abattoirs change their position from day to day during the manœuvres, this state of affairs is very temporary and probably of little moment so far as troops are concerned, whatever the inhabitants of the locality may think. When a public abattoir exists, it is understood that the work of the military abattoir would be carried out there.

The animals for slaughter were purchased locally by the corps intendance officers and followed the troops on hoof. It was noticed that several were cows.

With regard to the cooking of meals, nowhere either in the 13th or 14th Army Corps were travelling kitchens seen. Constant inquiries were made in order to find out if they had been distributed to any of the units, but the answer was invariably in the negative and frequently in a tone and in words which implied that the French soldier had no use for travelling kitchens. The old custom of preparing meals in the field in squads of four was universal. In the early morning coffee was prepared, at the mid-day halt fires were lighted on the road-side, in cuttings made with the entrenching tool. The fuel used consisted of twigs carried by each soldier on his back, with the addition of any dry straw or grass which might be at hand. An appetizing *ragoût* was rapidly prepared. Lard and bacon were melted and fried in the mess tin (*gamelle*) over the fire, potatoes were peeled, chopped, and cooked in the lard, and then pieces of fresh beef or tinned meat, with wine, if it could be obtained, were added. A *ragoût* of this kind was prepared in an incredibly short time by the roadside during a mid-day halt or *halte de repas*. In the evening, the same method was adopted by the squad for preparing their supper, but the kitchens of houses, where the men might be cantoned, were used instead of the open-air fire. In many cases, however, the men occupied sheds, and the method described above was then the only method available.

Medical Arrangements.—The medical arrangements of the manoeuvres consisted of (1), provision for actual illness or injury, and (2), provision for testing the work of the field medical units. These two categories of work were kept totally distinct and had absolutely no relationship one with the other; that is to say, the field medical units dealt only with fictitious casualties, and were not used for actual sickness or injury.

As regards provision for actual illness, the cases of sickness or injury were divided into three classes and dealt with accordingly. Very slight cases were relieved of their packs and marched with their units in rear of battalions or regiments, along with the battalion or regimental medical personnel. The men with blistered feet, sprains, or illness which was not of a serious character but which was sufficient to prevent them marching with their unit, were sent to *dépôts d'éclopés* formed at Moulins and Vichy for the 13th Army Corps and at St. Etienne and Roanne for the 14th Army Corps. They were taken to these places by any convenient train from the nearest railway station. The *dépôt d'éclopés* at Vichy was visited. It was a boys' school near the railway station. The arrangements were of the simplest possible character. Straw mattresses were placed on the bare concrete floors of the class-rooms, with a bolster, pillow, and blanket for each. A medical officer, with one or two assistants, was placed in charge, and a class-room, supplied with a few dressings and drugs, was used as a

medical inspection and dressing-room. The patients were sent back from the dépôt daily by railway to their garrison. They did not return to their units, even though recovery had taken place before the close of the manoeuvres. It was not considered worth while doing so for the sake of giving them a day or two more in the field.

Serious cases were dealt with differently. If a serious case of injury or illness occurred it was sent direct by train to the hospital of the garrison from which the troops came. But if the case was one which it was considered inadvisable to expose to the journey, the mayor of the nearest village was asked to find a suitable house where the patient could be placed, and the local practitioner was called in to take charge. When this was done, the gendarmerie of the locality reported the facts to the principal medical officer of the division who, on satisfying himself of the necessity of the action taken, signed vouchers for the payment of the inhabitant, whose house had been requisitioned, and of the local doctor who had been put in charge. The case would subsequently be removed as soon as practicable to the hospital of the garrison to which the man belonged. Cases developing serious symptoms after admission to the *dépôts d'éclopés* were transferred to the local civil hospital.

As regards the arrangements for testing the work of field medical units, these were of a very limited character. They were confined to one division only, the 25th Division of the 13th Army Corps, and were only intended as a test of the co-ordination of the movements of field medical units with the tactical operations, and of the arrangements for the care and feeding of casualties in divisional ambulances and field hospitals. For this purpose one divisional ambulance, a section of a corps ambulance, and one field hospital were mobilized. The two latter were army corps troops, the divisional ambulance was at the disposal of the divisional commander. Fictitious casualties, in the proportion of 5 per cent., were ordered to fall out during action by command of battalion and company officers, for whom the medical officers had prepared cardboard tallies with the name of the man on one side, and on the other the nature of his wound. The regimental part of the test seems to have been performed in a perfunctory manner. So far as could be seen the men simply walked back to the place where they were told to go, and were then taken back to the ambulance dressing station by the ambulance wagons, pack animals with cacolets and wheeled litters. If regimental bearers were exercised at all, they were not visible, although the bandsmen, who act as bearers, were usually observed marching in a group with the medical personnel but without stretchers.

The divisional ambulance and the field hospital carried on their functions much more completely, although not to the

extent described in a report on the manœuvres of the army medical service near Versailles in 1906. The fictitious wounded did not go beyond the field hospital. They were released there on the evening of the 17th September and rejoined their units. The really important part of the training was to test the arrangements in the field medical units for housing and feeding a considerable percentage of men from the fighting lines, a point which is, of course, of much importance, and which can be submitted to a more real test during army manœuvres than during medical manœuvres.

As regards the movements of the medical units in relation to the tactical operations, the divisional ambulance on the first day of the manœuvres was moved to Trezelle and assembled there about 3 in the afternoon, when the main body of the division had advanced to Château de Précourt, about 3 or 4 miles further on. It had arrived at this point about three or four hours after the division had come in contact with the enemy. On the following day the division was divided into sections. No. 1 section followed the main body and opened at the Château de la Bèche, about 2 miles behind the main line of advance, while No. 2 section followed the detached column sent S.W. in the direction of Andelaroche. It opened at a small village, La Tuilerie, some 4 or 5 miles distant from the line Andelaroche-Lodde, where fighting went on during the greater part of the day. On the detached column retiring on the main body in the afternoon, this section was ordered to retire to Varennes sur Tèche, about 3 miles further back, taking all the wounded with it.

The ambulance column was followed during this retreat; there were 63 wounded with it, 12 lying down in ambulance wagons, 28 sitting up (8 in an ambulance wagon, and 20 on cacolets), and 23 walking. On reaching Varennes sur Tèche, the local school, a very small one, and one other building, were requisitioned and got ready for reception of the wounded, and preparations were made for feeding them; the general arrangements being carried out with the aid of the local mayor.

On the 17th September the field hospital had been brought up to the Château de la Bèche to relieve the ambulance section there. In the meantime the P.M.O. of the 25th Division had reported on the evening of the 16th that both sections of his divisional ambulance were immobilized by the number of wounded in them, and asked for a section of the corps' ambulance to be placed at his disposal for the anticipated fighting on the following day. The corps' ambulance section was consequently placed at the disposal of the G.O.C. 25th Division from the morning of 17th September in corps operation orders of the evening of the 16th September. It opened on the 17th September at Montcombroux, while the field hospital came up and relieved the divisional ambulance section at the Château de la Bèche. The field hospital, as in the case of the medical

manœuvres near Versailles in 1906, made use of the stables and outhouses of the Château for the accommodation of the wounded. This practically represented the whole of the work done by the medical units. They closed early on the morning of the 18th September, before the final act in the manœuvre operations had taken place, and prepared to return to garrison.

The units were mobilized complete as regards personnel and transport with this exception, that the litter pack animals were omitted, and a wagon with 16 wheeled litters took their place in the divisional ambulance. No attempt was made to apply dressings, &c., to the fictitious wounds. The horses of the wheeled vehicles were obtained by requisition, but those used as pack transport for the cacolets belonged to the train. They were large animals about 15.2 in height, and not the mules (*mulets de bât*), which are usually told off for this purpose and are shown in war establishments. It was noticed that the vehicles were partly taken from the 26th and partly from the 25th divisional ambulance. Another point noticed was that the cavalry was not provided with the 2-horsed cavalry medical wagon which is normally assigned to each cavalry brigade. The 1-horsed ambulance cart, marked with the name and number of the regiment, was however attached to each cavalry regiment. The small 1-horsed ambulance cart of the divisional ambulance was distributed as is usual amongst regimental units and always followed close behind the battalions. The infantry battalion medical cart, on the other hand, was frequently not in evidence at all or kept far back with 2nd line transport.

ISSUE OF MEDICAL ORDERS.—Inquiries were made regarding the issue and preparation of orders in connection with medical services and medical units and regarding the *liaison* between the divisional and army corps principal medical officers and the divisional and army corps headquarters staff. The system seemed logical and simple. Each principal medical officer is an officer of the headquarters staff of his command. He communicates direct, either with his G.O.C. or with the Chief of the Staff, as his representative. During operations the principal medical officer, together with the other officers of the headquarters staff, is present whenever the G.O.C. explains a situation and discloses his intentions previous to the preparation of operation or other orders. He then proceeds to study the situation as affecting medical arrangements, and drafts proposals or orders in connection with them just as all other officers who are heads of services do in respect to their own services. These he brings to the Chief of the Staff at a given time for inclusion in the operation orders. Alterations are made or suggested by the G.O.C. (or Chief of the Staff) should the proposals not work in with the other dispositions. The operation orders are then issued by the G.O.C. in two parts; Part I. being "Tactical," and Part II. "Administrative" (*Service*). In the latter part are all the orders for the following day relative to position of supply

posts and times for drawing supplies, position of the headquarters staff, position of and orders to medical units, &c. Thus the paragraph headed *Medical* in Part II. of the Operation Orders of the 13th Army Corps, dated 16th September, read as follows:—

“The field hospital is stationary (*immobilisé*) at Château de la Bèche. The Corps Ambulance will be placed at the disposal of the 25th Division in the morning.”

The principal medical officer of an army corps explains the situation and intentions of the Commander, so far as is necessary, together with his own intentions regarding the working of the medical units, to officers commanding all the medical units which are directly at his disposal. Similarly the divisional principal medical officer communicates divisional orders and intentions to the officer commanding the divisional ambulance. He also proposes the place and time for opening the ambulance to the G.O.C. If the latter does not approve of the place selected, it is the P.M.O.'s duty to seek another and more suitable spot. The officer commanding the ambulance is concerned only with the opening and working of the ambulance at the place selected and with maintaining touch with the regimental medical service and his P.M.O. It is not his duty to determine the selection of a locality or subsequent movements of his ambulance. For inter-communication purposes cyclist orderlies are attached to P.M.O.'s and medical units.

As in the case of the medical manœuvres at Versailles in 1906, the medical officers of the field hospital were all reservists. The medical officers of the regular service were distinguished by wearing the *giberne* or pouch belt of red Morocco leather.

Physical Endurance of the French Soldier.—As has invariably been the case, every observer of the French soldier at manœuvres is impressed with his endurance, intelligence and cheerfulness. During the Bourbonnais manœuvres some long marches were made but none were of an exceptional nature. The weather, too, was favourable for marching; if anything, it would be described as cool and at times even chilly. There was practically no wind, beyond light breezes. On one or two occasions there was heavy rain. The movements were not rapid, and in addition to the normal halts during marches, there were long periods of rest during the tactical movements, and the invariable habit of removing the pack at every halt added to the rest so obtained. There was therefore no very great test of endurance. The physique of the soldier seen in the ranks varied considerably, the majority might be described as of moderate physique. In a few cases, but certainly not in many, there was evidence of over-fatigue. The general opinion amongst officers and men was that the majority of those likely to break down had already been eliminated during the preceding divisional manœuvres, when the hardships were great and the

weather wet and stormy. No figures were obtainable, but numbers of the infantry were said to have been returned to garrison at that time on account of illness or over-fatigue.

During the army manœuvre period from the 14th to 18th September only very trivial cases came to the *dépôts d'éclopés* at Vichy, mainly cases of blistered feet, sprains and digestive troubles. The total number was 85, and this practically represented the number sent back from one division of 10,000 men in six days.

FRANCE.

PART III.—ARMY CORPS AND DIVISIONAL MANŒUVRES.

Manœuvres of the 20th Army Corps, the 1st Division, the Tunis Division, the 6th Cavalry versus 8th Cavalry Division, and the 1st Cavalry versus 4th Cavalry Division took place in the vicinity of Charmes, Valenciennes, Tunis, Moulins and Rheims respectively.

STRENGTH AND COMPOSITION OF THE OPPOSING FORCES.

- No changes were made in the strength or composition of the various units, except that a certain number of reservists were incorporated in the ranks of the infantry of the 20th Army Corps and 1st Division. In the latter, companies had as many as 80 to 100 reservists.

NATURE OF THE OPERATIONS.

In all cases the general idea was very simple. In the manœuvres of the 20th Army Corps it was based on an episode in the 1870 war, namely, the situation on the morrow of the battle of Wörth. In the divisional manœuvres, when one mixed brigade was acting against another, the basis of the scheme was usually the action of a rearguard, a strong reconnaissance, or on one occasion the march of a convoy. For the manœuvres of the smaller units, *i.e.*, brigade manœuvres, the general idea was changed each day, but for the corps, cavalry and 1st Division manœuvres the same general idea was maintained throughout the operations.

On the last day of the 1st Division manœuvres, the General Officer Commanding exercised the division against a skeleton enemy. But this was the only instance of a marked position or skeleton enemy.

METHOD OF CONDUCTING THE MANŒUVRES.

Whatever the theory, in practice the operations were not continuous and no night work was witnessed. In some cases, notably in that of the 1st Division, outposts were established and cavalry patrols were directed to demonstrate against them, but the general opinion seemed to be that outposts and night operations were better practised during regimental or brigade training than during the actual manœuvres. A French general

said that he considered the strain of the latter was already sufficiently great without disturbing the night rest of the troops, but he was in favour of making them bivouac for at least one night.

The actual operations usually ended soon after midday. It must be remembered, however, that the troops had then to march 2 to 6 miles to their billets. In Tunis, on account of the heat, operations usually commenced at about 3.30 a.m. and finished before 9 a.m.

A conference was generally held at the end of each day's work. These conferences were attended by a large number of officers and were apt to be long (in one instance the conference lasted four hours) and rather discursive, but the criticisms were never harsh and the Directors put aside all question of one side or the other being victorious.

It was noticed that in the 1st Division leaders were frequently changed during the manoeuvres, in order to give officers an opportunity of handling a larger unit than that which they commanded ordinarily.

Umpiring.—Officers who witnessed these corps and divisional manoeuvres make the usual criticism that the number of umpires was insufficient. Speaking generally the umpires do not seem to have been very active, and there was a tendency on the part of regimental officers to dispute their decisions.

No arbitrary rules for umpiring were laid down and the umpires were allowed to exercise their judgment. They showed a marked disinclination to interfere with the forward movements of the troops. The above remark, however, hardly applies to the Tunis Division in which the umpires are stated to have been rather too free in putting whole units out of action.

The system of umpiring in the 20th Army Corps seems to have been more efficient than that noticed elsewhere. The following is an extract from the report of an officer who attended the manoeuvres of this corps:—

"I was able to examine the system of umpiring very closely for four days; the following is the general outline of the system. There was a senior umpire, three or four assistant umpires, six or eight lieutenants, and a number of cycle and motor-cycle orderlies on either side. The senior umpire divided the country likely to be fought over into zones and told off an assistant or two, according to circumstances, to each zone. Each of these umpires was supplied with a large number of lithographed rough copies of the map of his zone on a fairly large scale. At the *Mairie* in each village in the zone he left a lieutenant with three or four orderlies. The assistant umpire himself went out to a central spot in the zone and observed events. He was assisted in his zone by junior officers. All events were timed, and all situations placed on map in rough pencil with the umpire's decision pencilled on them and signed. These maps were, as orderlies were available, sent to the *Mairies*, there to be copied neatly and sent off hourly to the senior umpires on both sides. The senior umpire thus had a general knowledge of what was going on over the whole field of battle and could modify decisions of the

assistant umpires in accordance with what had occurred elsewhere. Speaking of the practical utility of this system, I can bear witness that at any hour of the day I could get a very clear account of what had occurred and was then occurring from any *Maire* or any assistant umpire. The umpires remained in their zones and observed any troops that came into it."

But another officer who witnessed the 20th Army Corps manœuvres criticises the umpires because—

"They gave definite orders to officers commanding units as to the action to be taken, instead of only giving these officers information and leaving them to act thereon."

REMARKS.

The Three Arms combined.—The remarks made in Part I. on the want of methods of communication apply also to these manœuvres. The result was that occasionally a lack of co-operation was visible, and attacks were sometimes mistimed and had not the necessary vigour. But the staff work is reported to have been good, and there was no delay or confusion in the movement of brigades or regiments in spite of the lack of means of communication.

The artillery support of its infantry was very close, but the cavalry did not co-operate sufficiently. This seems to have been due to the habit of waiting for an opportunity for shock action.

The spirit of the offensive had evidently been impressed on all arms, and a passive defence was not witnessed during any of these manœuvres. Commanders invariably maintained at first a comparatively large reserve, although the whole of the artillery was usually employed at once. The use of strong advanced guards and detachments was frequent, but, in the case of the 20th Army Corps, artillery was not always allotted to the advanced guards, even when the latter were pushed far ahead.

In the defence, there was a tendency to employ advanced positions, principally with a view to mislead the enemy, force him to a premature deployment and so facilitate the counter-attack. But these advanced positions were often held too long.

At present the cult of the "initiative" is very marked in France, and there seems a danger of the worship being overdone. Subordinate officers do not always act in conformity with the wishes of their superiors. But perhaps the greatest danger is that, owing to this spirit of independence, widely different tactical ideas are prevalent and sometimes lead to want of co-operation.

Infantry.—In the manœuvres of the 1st and Tunis Divisions the extensions were distinctly larger than in the army manœuvres. In the 20th Army Corps, on the other hand, they

were about the same, *i.e.*, rarely exceeding, 2 paces. The General Officer Commanding 1st Division at one of the conferences impressed on his officers the necessity of wide extensions in the early stages of the attack. He advocated the employment of "*petits paquets*" or small columns for the supports and reserves. In fact, since French infantry do not often open fire at ranges beyond 800-1,000 metres, the formations of the supports and reserves are designed solely against artillery fire.

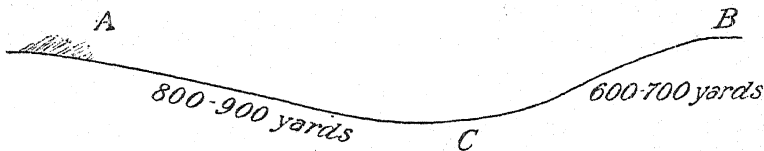
The guiding principles of the infantry attack may be summed up as follows:—

- (a) to advance as far as possible without firing.
- (b) to keep the main body in hand as long as possible.
- (c) to attack in depth.
- (d) supports and reserves to adopt formations giving bad targets to artillery fire.

An officer who witnessed the manœuvres of the 1st Division gives the following account of an infantry attack, as compared with a very similar attack carried out by German infantry:—

"I attended German manœuvres last year and in my report described an attack carried out by a Bavarian infantry brigade, *vide* pp. 85-86 of the 'Report on Foreign Manœuvres for 1908.' This year, I saw at French manœuvres an attack delivered over ground which resembled fairly closely that in the German manœuvres of last year, whilst the attacking force was of exactly the same strength, *viz.*, 6 battalions; though 2 battalions, the general reserve at the disposal of the G.O.C. the force, were not engaged. The differences were that at the French manœuvres the defending force was only 1 battalion strong, being really only an advanced post put out to delay the hostile advance; there was rather more cover *e.g.*, sheaves of corn, &c.; there was no half-way cover in which to reform, and the total distance was rather less, *e.g.*, about 1,400-1,700 yards as against 2,000-2,100 yards.

"The formations adopted by the French troops in the attack differed widely from those observed in Germany last year. First of all a few scouts extended at wide intervals (20-30 paces), came over the crest at A and advanced down the slope in quick time for some



300 yards, then halting and firing a few shots. Small bodies of troops now began to emerge from the cover at A and moved down the hill in all kinds of formations, making good use of the ground. The scouts then advanced some 150-200 yards, being now about 1,000 yards from B, and opened a lively fire which was supplemented by covering fire from some of the sections in support. The line of scouts was now reinforced and advanced in rushes of about 50-60 yards each. When about 800 yards from B, the firing line was extended at intervals of some 2, 3, and 4 paces, with wide gaps between the various portions, so that probably some 400 men only

were extended over the entire front of some 1,800-2,000 yards, with 400 more men dotted about in small columns from 150 to 400 yards in rear. Larger bodies of troops (2 battalions acting as supports) now became visible on the crest of the hill at A and moved down the slope gradually, mostly in sections, some in column, and some in line in close order or at one pace interval. On several occasions, before splitting up into sections, these troops formed admirable targets for long range infantry fire or for artillery.

"The firing line, after remaining stationary for some time, now advanced and was again reinforced until, at the point C, it was about 800 strong. The supports were meanwhile making their way slowly down the hill, retaining their original formations and adapting themselves to the ground as much as possible. When they had reached a general line varying from 400-700 yards from A, the reserves appeared on the crest of the hill A in very close and vulnerable formations and would have been exposed to heavy losses from infantry, machine-gun or artillery fire. Soon after this the firing line again continued their advance, and the defenders began to withdraw from the position which was then occupied by the attacking troops.

"The attack was in some respects well carried out; i.e., the formations adopted were good on the whole, fair use was made of the ground, and covering fire was used to some purpose; the cohesion of the firing line was good, in spite of the apparent want of all communications and the wide gaps between sections. On the other hand, the advance was too slow, both as regards its general execution and the work of individual squads and sections; better use might have been made of the cover available, and covering fire might have been utilised to a far greater extent than appeared to be the case. The supporting artillery was employing indirect fire, range about 2,200-2,800 yards."

In the 20th Army Corps the infantry showed themselves skilful in taking cover. Advances were made carefully, especially when cover was not good. On these occasions two or three men crept forward, covered by fire, and established themselves 30 yards or so in advance. They were followed by other small groups of men until the whole section gained the new position. If cover were good the entire section rushed forward together.

In the Tunis Division, although the men took cover well, the advance was hurried. This was, however, probably due to a desire to finish the day's operations before the sun became too hot.

The spirit of the offensive is evidently inculcated in the French infantry, as the following extract shows:—

"An interesting episode was witnessed by me in a village—A company of infantry were drawn up at the top of the main street so as to fire down it. A company of *chasseurs* appeared at the bottom of this street in column of route and, on seeing the opposing infantry, made for shelter on each side of the street. The *chasseur* captain, however, fixed bayonets and led his men forward with a rush and a cheer through the narrow village street to within a few yards of the infantry. The captain of the infantry company remonstrated hotly with the *chasseur* captain on this procedure. The reply of the latter was:—"Je ferais la même chose à la guerre; quand je me trouve en mauvaise posture, toujours j'avance." The two opposing bodies remained facing each other for some time, and neither would give way."

Fire Discipline.—Fire discipline seems to have been good and no instances of wild firing are reported. In the defence fire was opened at about 1,100 yards unless very vulnerable targets presented themselves. In the attack the firing line seldom opened fire beyond 800 yards.

Rapid firing was used at longer ranges and more frequently than in the army manœuvres, but it was well controlled and at the longer ranges directed against troops in close formations. Short but sudden bursts, "rafales," were the rule.

No range-finders were used, and distances were invariably judged by the eye. The French consider that the latter is the most practical range-finder, but it cannot be said that the leaders showed any special skill in judging distances.

It was noticed that the men both in the attack and defence often fired kneeling, even when close to the enemy. But it should be remembered that the equipment of the French infantry is not very comfortable in the lying position.

Outposts.—The infantry patrolling was often indifferent, and the men were apt to crowd together and take no precautions.

Outposts frequently formed stout barricades in the villages, constructing them of all kinds of material, carts, ladders, beds, poles, gates, &c.

Entrenching.—No case of infantry entrenching during the attack was seen. In the defence, the infantry often constructed hasty and shallow trenches for men kneeling. They were as a rule situated just below the crest, made in lengths suitable for sections, and care was taken to conceal them.

Physique of Colonial Troops.—The Zouaves marched and manœuvred well, but as they are mainly recruited from Frenchmen resident in Algeria and Tunisia they do not differ, except in uniform, from the line regiments.

The African Light Infantry, to which are relegated Frenchmen who have been convicted of civil or military crimes, are reported to have worked with a certain amount of indifference. Their discipline is, however, good.

The "Tirailleurs" are natives. They make excellent soldiers, are very intelligent, are good shots and, according to the General Officer Commanding Tunis Division, can be trained to become reliable and efficient non-commissioned officers, but they rarely make good officers. They have the reputation of being good marchers and of possessing great powers of endurance, although on the first day of the manœuvres numbers of them fell out. But the day was very sultry, with no wind, the troops had been manœuvring from 4 to 9 a.m. in their packs and were then called upon to march to their camp, which was not reached until 12.30 p.m. They had, however, quite recovered by the following day and afterwards marched and manœuvred cheerfully. It was noticed that men with sore feet took off their boots and marched in their canvas shoes.

Cavalry.—The personnel of the cavalry was excellent, the “Spahis” especially being described as born riders. The horses of the light cavalry struck most observers as being too weedy.

The reconnaissance work of the cavalry is reported to have been good. But the individual scouting was often faulty, and the men were apt to expose themselves recklessly. In this connection the following extract from the report of an officer may be quoted :—

“The movements of the attacking cavalry force, which attempted a flank march along the sheltered side of a rolling line of heights, were betrayed by the movements of flankers who, instead of appearing and disappearing at different points, rode along the crest of the heights. Throughout these operations and the two days’ manœuvres of the 20th Army Corps which I subsequently attended, I was struck by the fact that whereas larger cavalry units (squadrons and troops) were skilfully led by their commanders so as to elude observation, patrols and individual scouts were very careless in exposing themselves.”

From the experiences of the cavalry manœuvres it would seem that marches of approach, in the vicinity of the enemy, are made in formations of “double columns” of troops, from which the brigade deploys into line for attack. Each squadron sends out one ground scout. A division of three brigades adopts the following procedure in attack :—

1st Phase—The advance—advanced guard, 1 regiment.

Echelon of brigade masses—2 brigades.

Reserve—1 regiment.

2nd Phase—Each brigade is formed in double columns of troops.

3rd Phase—(a) The attack in line.

(b) Break up.

4th Phase—Rally to a flank in double columns of troops.

Deployment does not take place until close to the enemy. The preparation for the attack is deliberate, and the pace of the charge is slow. On one occasion cavalry were observed to charge, at a moderate pace, right through a line of infantry.

Dismounted Action.—In the 1st, 4th, 6th and 8th Cavalry Divisions, a good deal of attention is evidently devoted to dismounted work. Squadrons frequently dismounted and sent forward a line of skirmishers to capture a village, bridge, &c.

Led horses were frequently exposed, and the directors devoted a large part of their remarks to this point.

Volley firing is more used than independent firing.

Attachment of Officers of other Arms.—It was noticed that in a few instances squadrons were commanded by infantry captains.

Communication.—No visual signalling was seen. Cavalry divisions had attached about 30 sapper cyclists who acted as orderlies.

Cavalry Pontoon Bridge.—The following is an extract from the report of an officer who attended the manœuvres of the 1st Cavalry versus 4th Cavalry Division.

- “I witnessed the passage of some troops and vehicles over a pontoon bridge which had been constructed during the previous night, and saw the bridge dismantled.

“The following is a description of the bridge. The component parts are:—

- (a) pontoons.
- (b) Road bearers.
- (c) Chesses.
- (d) Railings.
- (e) Wire hawser, stays and other accessories.

“(a) *Pontoons.*

“These comprise three portions:—

“(1) Shell, (2) tarpaulin sheets, (3) interior portion.

“The shell consists of thin wooden boards connected by hinges. The boards have canvas ends with leather straps and buckles. The whole folds into a surface of about 10 feet by 2 feet and is thus carried. The tarpaulin sheets render the whole waterproof. They go between the “shell” and the inner portion. The last-named is made of heavier wood and folds up similarly to the “shell.” At the stern ends of the pontoons are pulleys through which a wire hawser is passed. This hawser, which stretches from bank to bank, is secured to stakes at the banks. The stakes (one behind the other) are connected by means of block and tackle. The hawser, which resists the force of the current, keeps the pontoons in position and does away with the necessity for anchors.

“(b) *Road Bearers (Poutrelles).*

• “The road bearers rest on the gunwales of the pontoons and they are continuous from bank to bank. The weight is evenly distributed over the pontoons, and no saddle is necessary. The lengths of road bearers are each 3 metres (nearly 10 feet) long and consist of two rectangular planks about 1½ inches by 6 inches which are fastened together, the narrow surfaces being uppermost and supporting the chesses. The two planks forming each length do not coincide, but a single stretch of plank projects at each end.

“The road bearers are kept in position by two pieces of iron riveted together in the centre so as to form an “X” (*croix de contre-éventement*) capable of folding up. The “X” has hook-shaped ends. These engage into iron eyelet holes which are fixed to the sides of the road bearers near the ends. The different lengths of road bearer are thus linked up to form one rigid length.

“(c) *Chesses (Plateaux).*

“The chesses consist of two layers of planks arranged trellis pattern. At the ends of the chesses are strips of galvanized iron. The length of a chess is 3 metres (nearly 10 feet), and its width is 65 centimetres (2 feet 1½ inches). Each chess fits into the one beyond it by means of an iron stud engaging in a recess. With the maximum width of roadway 4 chesses are placed alongside of each other. With this width the largest gap which can be spanned with one pontoon is 9 metres (30 feet). With a width of 2 or 3 chesses (4½ to 6½ feet breadth of roadway), a gap of 15 metres (50 feet) can be spanned. With a single length of chesses (2 feet roadway), the length of bridge may go up to 22 metres (70 feet). The above data were communicated to me by a N.C.O. of Sappers in the course of conversation.

“Particulars about the bridge which I saw are given further on.

"(d) *Railings.*

"Iron uprights with eyelet holes at the top, and lengths of rope passed through these holes, constitute rails.

"(e) *Wire Hawser, Stays and other Accessories.*

"The wire hawser and the stakes which hold it have already been described. Planks are also carried which are put down underneath the road bearers at the banks with a view to giving the necessary camber, and as a support to the road bearers where the banks are sandy or muddy.

"A cavalry division carries 12 pontoons with accessories complete. Each of the 6 regiments of the division has on its charge 2 pontoons, 10 road bearers and 8 chesses, with a proportionate amount of other material. The whole is packed in a light wagon (*haquet*); the method of packing being as follows:—

"First are put in two alternate layers of road bearers and chesses; then the inside portions of the two pontoons; then two tarpaulins; then two "shells"; lastly two tool boxes.

"The bridge which I saw consisted of 6 pontoons; the maximum breadth of roadway was employed, and the total length of bridge was about 75 feet. The time taken to construct the bridge was about 1½ hours. Half to three-quarters of an hour was occupied in dismantling it and loading the material on to the wagons.

"The method of dismantling was as follows:—

"The chesses and supports at the far end were loosened. Railings were removed and packed up. The whole of the superstructure (*tablier*), and with it the pontoons, was then pulled in a short distance by men seizing the end of the road bearers.

"The nearest pontoon was then allowed to float away from under the structure. Chesses were taken off, and the nearest length of road bearers disconnected. The next furthest pontoon was then pulled away from underneath, and the whole bridge was hauled in still further. This process was repeated until the whole bridge had been dismantled.

"I saw a party of mounted men pass over the bridge and empty wagons were dragged over it by hand. The swaying was not excessive, and the buoyancy of the pontoons would have sufficed for a much heavier load. The work was carried out by mixed parties of sappers and cavalry pioneers. The sappers belonged to a detachment on cycles, to which allusion has been made in the description of the operations. A collapsible boat was also launched but was used for construction purposes only."

Artillery.—The reports of officers add little to what has already been said in Part I. on artillery. There was the same close support of the infantry and the same occasional disregard of the effects of rifle fire. On the whole, and especially in the 1st Division, the guns were better hidden and were not betrayed by the flash. There was a noticeable disinclination in the 1st Division to mass guns.

Indirect fire was, except in the Tunis Division, nearly always resorted to and on several occasions was used against moving targets such as advancing infantry.

The artillery of the Tunis Division, however, generally adopted positions whence the target could be seen. The flash of the gun, as usual, betrayed the situation of the guns.

In the same division, great importance is attached to infantry escorts, and French officers discussed the question whether the latter should not be made permanent, *i.e.*, the same escort to be

attached to the same battery, so that they might become thoroughly acquainted with each other.

Mountain Artillery.—The Tunis Division had a battery of mountain artillery. The gun carriage (which divides into two parts) and the wheels are carried on three mules. The gun is quickly mounted and dismounted. Gun numbers are French, but the mule leaders are natives. The training of the battery is not good, according to the report of the officer who witnessed these manœuvres. It was badly handled by the Captain, the service of the guns was slack, and fire discipline poor. On one occasion, the battery was in action against advancing infantry and remained firing until the enemy was within 300 yards. It then attempted to retire, and the mules were brought up under a heavy rifle fire.

As has been often noticed with the field artillery, no use was made of instruments such as clinometers, &c. The mountain artillery had a different form of clinometer to that used by the field gunners. It is thus described:—

“It took the form of a substantial gun-metal disc mounted inside, and capable of revolution within, a gun-metal ring of the same general cross section as the disc. The lower part of this ring had attached to it a projecting piece of metal formed into a true plane on the bottom side. The ring had a zero point engraved upon it and a scale of degrees. The disc had an index, and mounted at the centre of the disc was a bubble. Any desired elevation or depression could be placed on the clinometer by revolving the inner disc until its index was opposite the desired elevation on scale engraved on the outer ring. The plane of the clinometer being placed on the gun, the gun was elevated until the bubble became level. This clinometer is strong and serviceable.”

Engineers.—The engineers played but a small part in these manœuvres. They were employed in constructing light foot bridges (none of which were, however, seen), making trenches of the infantry, and putting villages into a state of defence. Some trenches constructed for the infantry by the engineers of the Tunis Division are reported to have been of slight construction, with no head cover, and no attempt at concealment.

Medical Services.—The collection and evacuation of the wounded were not practised. It was stated that such exercises had been carried out during regimental and brigade training.

Machine Guns.—The remarks already made in Part I. (see page 48) apply equally to these manœuvres. In the 20th Army Corps the machine-gun section of a battalion was often detached to a considerable distance from its unit and was accompanied by an escort of one company. In this corps, the only instance of a range-finder being used was witnessed. The instrument is described as resembling the “Marindin” but larger and with a longer eye-piece. Although no absolute rule was laid down for umpires as to the value to be assigned to the fire of machine guns, yet in the 1st Division it was generally considered that each gun equalled 30 men. Entrenchments for machine guns

were made in this same division, taking the form of a small gun pit with cover for a man of the detachment on each side of the gun.

Communications.—The only visual signalling observed was by semaphore, which was slow. Otherwise communication was maintained by orderlies. During the conferences, especially at those of the Tunis Division, the necessity of maintaining communication was constantly emphasized, and officers were questioned as to how they kept up communication and passed on information. The General Officer Commanding Tunis Division stated that communication must come both from above and below, that information must pass not only from front to rear, but from rear to front and from right to left or "vice versa," not only between the commanders of larger units, but also between the sub-divisions of those units. But it is curious that such a high standard of inter-communication can be expected from a system without telephones or visual signalling.

Billets and Bivouacs.—The troops, as usual, were billeted, except in the case of the Tunis manœuvres, when camps were pitched every day. The sanitary condition of the camps was bad; no latrines or urinals were considered necessary, and no attempt made to clean up the ground on leaving.

Supply.—The supplies for the Tunis Division during the manœuvres, which took place about 20 miles from Tunis, were brought to the troops by the contractor at that town.

Cooking.—Several officers mention the skill of the French soldier in cooking. But the system of cooking by squads has its disadvantages, since it was found that the smoke of the numerous fires often betrayed the resting place of a column.

GERMANY.

PART I.

IMPERIAL MANŒUVRES.

The Imperial Manœuvres took place in the north-east of the Grand Duchy of Baden on the 15th, 16th and 17th September, and were carried out by the XIIIth (Royal Württemberg), XIVth, 1st and IIIrd Bavarian Army Corps, the 4th Bavarian Infantry Division, the "A" Cavalry Division, a Bavarian cavalry division and a composite cavalry division. The Bavarian army (the troops in the *Reichsland* excepted) had not taken part in the Imperial Manœuvres for 12 years, nor the Württemberg army for 10 years.

STRENGTH AND COMPOSITION OF THE OPPOSING FORCES.

Blue Force.

Commander:—*General-oberst** von Bock und Polach.

XIIIth (R.W.)† Army Corps:—

26th Infantry Division.

27th Infantry Division.

Corps troops.

1st Bavarian Army Corps:—

1st Infantry Division.

2nd Infantry Division.

Corps troops.

Cavalry Corps:—

Württemberg Cavalry Division (composite).

Bavarian Cavalry Division.

Total:—52½ battalions (700 bayonets), 67 squadrons, 47 batteries of horse and field artillery, 7 heavy batteries, 2 machine-gun batteries, 7 companies of pioneers, 1 cavalry pioneer detachment, 6 telephone detachments, 1 wireless telegraph detachment, 2 corps telegraph detachments, 1½ field signalling detachments and 1 dirigible balloon.

Red Force.

Commander:—Field Marshal Prince Leopold of Bavaria.

IIIrd Bavarian Army Corps:—

5th Infantry Division.

6th Infantry Division.

Corps troops.

* Field Marshal really; literally Colonel-General. (General Staff.)

† R.W. = Royal Württemberg. (General Staff.)

XIVth Army Corps:—

- 28th Infantry Division.
- 29th Infantry Division.
- Corps troops.

XXth Army Corps:—*

- 4th Bavarian Infantry Division.
- 39th Infantry Division.
- Corps troops.

• • "A" Cavalry Division.

- 25th Cavalry Brigade.
- 28th Cavalry Brigade.
- 30th Cavalry Brigade.
- Divisional troops.

Total:—74½ battalions (700 bayonets), 57 squadrons, 62 batteries of horse and field artillery, 7 heavy batteries, 3 machine-gun batteries, 11 companies of pioneers, 1 cavalry pioneer detachment, 9 telephone detachments, 1 wireless telegraph detachment, 3 corps telegraph detachments, 1 field signalling detachment and 1 balloon detachment.

The total of the two armies is reported to have amounted to 91,900 rifles, 14,200 sabres, 636 guns and 96† machine-guns—supplies being required for 125,000 men and 29,100 horses.

COUNTRY.

The theatre of operations was situated mainly in the Grand Duchy of Baden, but small areas in the north-west and north-east corners belonged to Bavaria, and in the south-east corner to Württemberg. The boundaries were, roughly—to the north, the valley of the River Main; to the west, the Odenwald; to the south and east, lines running east and south respectively through Heidelberg and Würzburg.

The country, which varies in altitude between 500 and 1,500 feet, is hilly and broken. The main valley, that of the Tauber, which traverses it from south-east to north-west, is wide and marshy in places. The valleys of its affluents are generally narrow and with steep slopes. All the streams, except the Tauber in places, are fordable. Narrow ridges are numerous.

The greater half of the surface is covered with oak and beech forest. The crops are oats, beet and maize, and some of them were still on the ground. Vineyards, on terraced slopes facing south, were numerous. The roads are all narrow—especially through the villages.

* Does not exist as a normal peace formation and was specially formed.—(General Staff.)

† Since there were 5 machine-gun batteries (*Abteilungen*) the remaining 66 guns were those of machine-gun companies belonging to various regiments.—(General Staff.)

Two railways traverse the manœuvre area : from north-east to south-west the double line from Würzburg to Heilbron, and from south-east to north the single line which follows the valley of the Tauber.

• The weather was showery and cool, and the dews at night heavy. On the last day there was a thick fog which only partially lifted two hours before the conference.

NATURE OF THE OPERATIONS. • •

While the (imaginary) main forces of Blue were assembling in a distant theatre of war, the Red army mobilized, whereupon Blue formed an independent force on its northern frontier which ran approximately through Mergentheim and Neckarsulm.

On the morning of the 13th September the Blue Cavalry Corps and the 29th Division were near the frontier, with the 1st Bavarian and XIIIth Army Corps close in rear. The Red "A" Cavalry Division and the 4th and 5th Infantry Divisions were also near the frontier, but the XIVth, XXth and IIrd Bavarian Army Corps were fifty miles in rear. Blue declared war at noon and moved forward to attack the Red 4th Division.

On the 14th September the Blue army advanced to the line Mergentheim-Boxberg, the left flank being covered by the Cavalry Corps. The Red 5th and 6th Divisions concentrated at Lauda and Tauberbischofsheim, and the 4th Infantry and "A" Cavalry divisions, moved eastward to gain touch with them.

On the 15th September the five Red divisions, attacked by the three Blue corps, fell back slightly towards the north-west.

On the 16th September the Red left wing was driven back by the 1st Bavarian Corps, but the arrival of the Red XIVth Corps caused the Blue army to fall back behind the Tauber, where it was attacked in front by Red early on the 17th.

METHOD OF CONDUCTING THE MANŒUVRES.

General.—The foreign guests were invited for the 15th, 16th and 17th of September, but hostilities really began at 11 a.m. on the 13th and ceased before noon on the 17th September. This year the opposing generals were, as usual, supposed to have had a far freer hand than heretofore. The headquarters of armies were marked by standards, one with blue and white chequers and the other with red and white chequers.

On the last day a thick fog, and the knowledge that the operations would come to an end in two hours, were probably responsible for situations strongly recalling old time Easter Monday sham-fights; otherwise the manœuvres appear, like those of last year, to have been carried out under conditions more

like those which obtain on active service than has been formerly the case. The unreality of these manœuvres is apparently getting less and less every year. More than once the emptiness of the battlefield was remarked. It seemed only when casualty flags had been ordered and reinforcements sent up that the crowding and packing described in past reports, occurred.

Railway Arrangements.—According to the press the following numbers were transported by the railways:—

	Men.	Horses.	Vehicles.
On the 13th, in 129 trains	70,000	10,000	750
„ 18th, in 85 „	97,000	2,800	179
„ 20th, in 80 „	10,000	5,000	180
„ 21st, in 22 „	4,500	4,200	131
„ 22/24th in 12 trains	23,000	1,750	160

Compensation Arrangements.—No manœuvre rights are required. Each army corps keeps a running account for compensation and has allotted to it every year about 1,000*l.*, or more if it is holding cavalry manœuvres. This year vineyards were placed out of bounds, and beetroots were avoided when possible. On account of the lateness of the crops a good deal of outcry was raised about the date of the manœuvres in Bavaria and Württemberg, and it was probably partly on account of this that the actual operations were carried out almost entirely in Baden. Compensation boards allot the damages almost immediately after the manœuvres; they consist of an agricultural expert, an officer of the staff, and an official of the military administration.

Supply.—It is said that at the manœuvres in question a considerable proportion of the supplies, more especially in the case of the cavalry, were purchased by units on the spot as they required them. It is also stated that supplies were not always forthcoming even in large townships, and some expression of public feeling seems to have taken place in Würzburg on this point.

The system of supply and transport at Imperial Manœuvres is exactly what the local authorities are most desirous that the foreign officers shall learn and see nothing about, and great pains are taken that they shall not arrive before the commencement of hostilities, or remain in the manœuvre area after their termination.

Police Arrangements.—The field gendarmes were far less numerous and officious than usual, but it is true the crowds were much smaller.

Signal Balloon and distinguishing Marks.—The signal-balloon signals and distinguishing marks of the troops were the same as last year.

Field Service Uniforms.—The units have field service uniforms in store ready for mobilization, but it is believed that none were worn at the manoeuvres under report.

Distinguishing Marks for Transport Vehicles.—No signs of any kind in the nature of flags to readily distinguish the baggage and trains of different units were seen, and it is believed that none exist. There are in store painted boards for each wagon on mobilization, but even these were not all brought out, and requisitioned wagons were often marked by chalk writing on plain pieces of board. It was understood that the reason of this was to save the regulation boards.*

Umpires.—Only 2 umpires per infantry brigade were detailed, yet the umpiring seemed excellently done.

REMARKS.

Staff.—The position of divisional staffs in action was twice noticed as not coinciding with the practice in the British army. On the 1st day the 5th Bavarian Divisional Headquarters were placed under a hill from the top of which the artillery was firing right over the general's head. On the 2nd day the 1st Bavarian Divisional Headquarters were on a crest among, and even in front of, a line of guns. An officer at this headquarters detected, at one moment, a staff on the opposing side, and orders were sent to the guns to turn on to it. It apparently did not occur to him how conspicuous his own staff must have been. Possibly these two cases would not be reproduced in war, but they show that divisional commanders intend to be well forward in order to see for themselves and make their presence felt on the battlefield.

The rapidity with which orders were dictated, and the system of having representatives of units constantly at divisional headquarters, were remarked.

Development of an Attack.—On the 1st day the 1st Bavarian Army Corps turned the enemy's flank, the whole corps marching by one road. The advanced guard engaged the enemy, under cover of this the position was reconnoitred, and the guns of the main body occupied positions in observation. Meanwhile the infantry moved up and deployed under cover ready for the attack. Instructions were issued to ensure correct direction and simultaneous action. About 3 hours elapsed after the advanced guard came into action before the attack began to make itself felt.

* See also page 126.

REMARKS.

Infantry.—The press claim an average of 50 kilometres (31¼ miles) a day for the marches, but it was stated that in numerous cases regiments had marched 45 or even 50 miles in the day. The excellence of the march discipline was noticed. There was no opening out or straggling across the road. There was apparently no difference between the marching of the colour service men and reservists, of which there were a number in the ranks. Both marched magnificently.

The Bavarian officers seem careful of the comfort of their men and in summer order the collars and top buttons of tunics to be unfastened as soon as the units march off, instead of waiting till it is very hot as is done in Prussia. In the XIVth Corps every company has its field kitchen, but in the XIIIth Corps only one regiment, the 121st, appears to have had them. It is believed that the majority of the infantry units bivouacked on two nights. Mules are said to have been tried in the 39th Division to bring up ammunition to the firing line. The trenches that were seen were better hidden with branches, straw and grass than has been formerly the case. The trace of the majority was very good; the profiles were very slight.

There seemed to be a disinclination for infantry to open fire until the last moment, that is until the opposing sides got within 800-1,000 yards of each other. On one occasion good covering fire at about 1,500 yards range was noticed across a valley and over the heads of the firing line. It is understood the first range, usually obtained from the battalion range-finder, is given out by the company commander. As advances are made the section commanders order the sights to be lowered till within 400 metres (440 yards) of the position, after which the fixed sight is used.

Wide extensions in the British sense of the word are not used. The principle seemed to be that every commander should keep his command collected and closed up under his hand as much and for as long as possible, but when exposed ground had to be crossed every unit opened out to 3 or 4 paces interval. When the danger was passed the men were closed again. No opportunity was apparently missed of closing men when cover from fire was obtained. This was several times noticed in the attack.

Rushes by sections (at manœuvres 40-60 men) seemed almost universal. Advances of from 50 to 80 yards were repeatedly noticed. The men doubled anyhow but always halted in a good line to open fire. While one section advanced the others brought covering fire to bear. When watching from a flank a firing line advancing down a hill to cross a valley, the impression gained was of a series of short lines (sections) echeloned about the hill, evidently taking advantage of the ground.

The kits were not lightened to a greater extent than to allow 4 to 6 men to have cleaning gear in common; 2 of the 3 emergency rations, in place of 1, are, however, now to be carried in the field kitchen. It is understood that the field service kits are considerably lighter. On the last day, kits of battalions were seen in several places on the ground, where they had been placed prior to attacking.

Cavalry.—Practically nothing was seen of the cavalry; once a squadron was seen in the mist too far off to distinguish whether it consisted of hussars or lancers, otherwise only single orderlies and scouts, and on several occasions a patrol under a non-commissioned officer, were seen.

It was understood that the new cavalry carbine was being carried, but it was not inspected. The Bavarians still carry the carbine across the thigh and the XIIIth and XIVth Army Corps in a bucket.

No dismounted fire action was witnessed, but it was reported that on the 2nd day the Cavalry Corps (Blue) delayed the advance of the XIVth Army Corps (Red) by dismounted fire action, and that it was one of the best pieces of work done during the manoeuvres.

No pack wireless telegraph equipment was seen with the cavalry.

Artillery.—"Positions in the open" and "semi-concealed positions" seemed to be the most popular. The prevailing idea seemed to be to move the guns forward, regardless of loss, in order to support the infantry. Once the howitzers were seen to come into action by the direct method.

The flash of the gun seemed easier to pick up than in the case of British artillery.

A line of guns of the 5th Bavarian Division was seen entrenched on the first day. Shallow pits were made almost on the skyline. Earth was thrown up round the gun about 18" high and was partially revetted with sand bags. The soil was clay and full of stones, being difficult to dig. The parapet was hardly bullet-proof. Care seemed to be taken in all cases to disguise the outlines of shields, gun pits, and scissor-telescopes with branches, wisps of straw, &c.

None of the field batteries that were seen had observation wagons, and no gun batteries had any wagons at the manoeuvres. It was stated that observation wagons for field artillery were to be issued during October, and that they are very similar to those of the heavy batteries described on pages 75 and 76 of the "Report on Foreign Manoeuvres, 1907." Several of the batteries, however, had improvised telescopic inverted-v-shaped ladders which were carried on the trail of one of the guns.*

Though out before daylight on two occasions, no artillery was seen to be used until it was light enough to observe.

* Probably similar to the one described on page 117.—(General Staff.)

Screens for indicating the target fired at were fully used in accordance with the German Manœuvre Regulations, 1908, and only one target indicating lamp (*vide* page 65 "Report on Foreign Manœuvres, 1908") was seen, and that at a distance.

Fire discipline seemed perfunctory.

• As regards heavy field howitzers, those of the IIIrd Bavarian Army Corps were observed with the general reserve on the first day. During the progress of the fight the general officer commanding the 5th Division asked corps headquarters to send them to a certain place in order to support his left.

Not much eye for country was shown in the use of the heavy artillery, and one battery came into action in a position where the recoil due to service charges would have run the howitzers down the hill.

One battalion was noticed to have one observation station for each battery, 500 yards to the front.

Telephone wires in use with the artillery were not well laid and were several times cut by traffic.

• **Engineers.**—No efforts were noticed to employ the pioneers in making supporting points in the attack. More than once they were used purely as infantry.* There was no question of there being a "fourth" arm on the battlefield.

• **Signalling.**—In the zone next the enemy the lamps and heliographs seemed to be monopolized by the umpire staff, and the signalling done by the troops appeared to be limited to the use of the regulation abbreviated morse signals† between the firing line, and the supports and guns. These have been modified and are now as follows:—

Advance	-	-	-	a v	in Morse code.
Increase range of guns	-	-	-	g v	"
Halt	-	-	-	h l	"
Ammunition needed (or coming)	-	-	-	m n	"
We want to attack (or are going to)	-	-	-	s m	"

No other communication between the infantry and the artillery was seen, and it was observed that at two divisional headquarters the information appeared to come through the headquarters from the infantry and was then transmitted to the guns.

The acetylene lamp and helio combined was inspected (*see* sketch below). Signalling detachments consisted of five men and six horses (one pack). The lamp is quickly taken to pieces and packed into leather cases about 10 to 12 inches square and 5 inches deep. Five cases are used, one being for stationery. The lamp took about four minutes to pack up. The cases with the tripod and four or five oxygen cylinders, each about

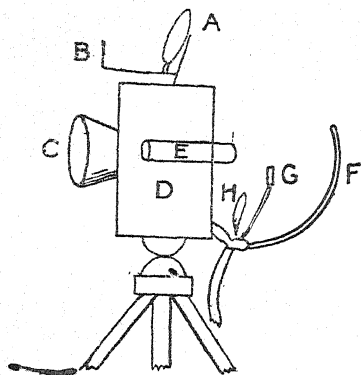
* This is very usual at German Manœuvres. (General Staff.)

† *Vide* page 212, General Staff translation of the German Field Service Regulations, 1908." (General Staff.)

18 inches long and $2\frac{1}{2}$ inches in diameter, were carried on the pack horse, together with the gas generator. Each man carried a cylinder of oxygen on the near side of his saddle in a frog.

The acetylene signalling lamp appears to have been improved lately: the gas pressure has been raised, and the discs on which it plays have been increased in size; it was understood that the candle power had thereby been increased 50 per cent.

Rough Sketch of Acetylene Lamp and Helio.



- A Helio.
- B Sighting arm.
- C Front lens about 6-inch diameter.
- D Body of lamp holding rear lens.
- E Small telescope for sighting lamp.
- F Hood of domed metal to protect light.
- G Lime pencil.
- H Jets.

On the tripod is slung an oxygen cylinder between the legs of tripod; the acetylene gas is made in a metal vessel shaped like a German private's mess tin.

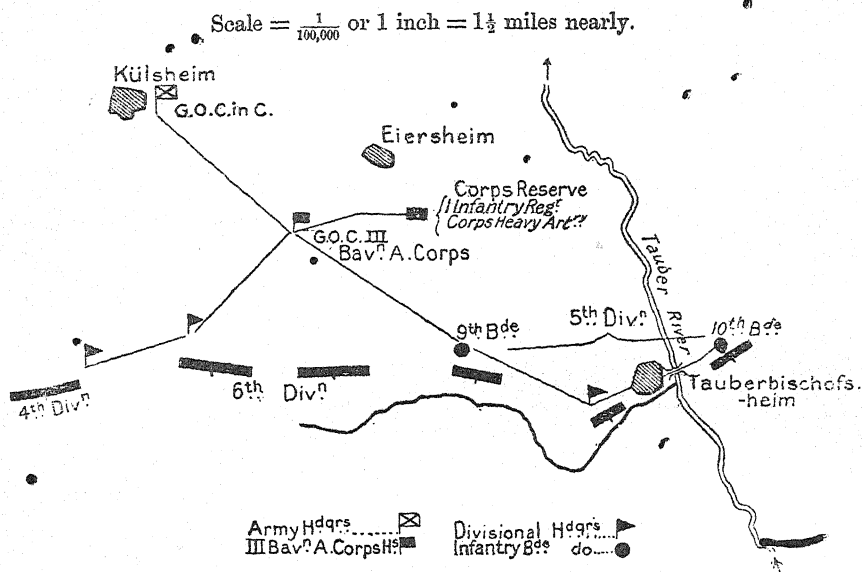
The shutter is worked from the right in the body of the lamp.

Telephones.—A considerable development seems to have taken place, however, in the second zone, the domain of the telephone, and wires were constantly being ridden over. The following is a diagram of the principal telephonic communications of the Red army on the 15th September 1909.

Only telephonic use of the wires was noted, no telegraphing was seen. There were two wires in use, one heavy and one light. The former resembles the British R.E. pattern. It was observed being laid at a trot, a man with a 20-foot crook stick following behind, lifting the cable on to the fruit trees which lined the road. The light cable was much thinner than the British infantry brigade pattern, and resembled the man pack wire tried at Aldershot in 1906, but it appeared less liable to kink and was stronger. It was insulated apparently with a woven thread covering, steeped in some rubber solution. It was paid out across country or in the danger zone from reels about 2-feet long carried temporarily in a cradle on the man's back or on a frame carried by two men. Though messages seemed to get through all right a good deal of

repeating and spelling of words seemed necessary. At a divisional headquarters a temporary table was rigged up which seemed a great convenience to the staff (*see sketch on page 87*).

*Plan of Principal Cable Communications in Red Army,
15th September 1909.*

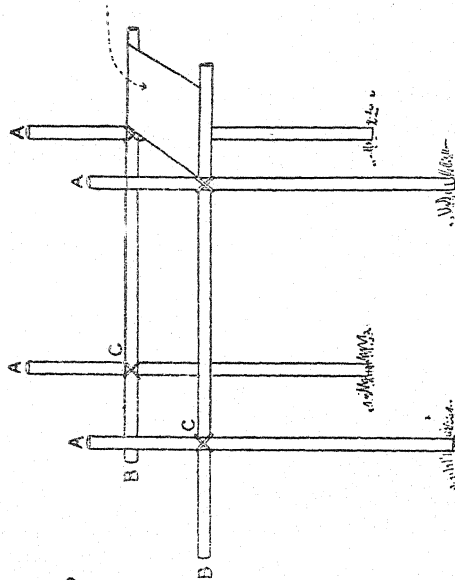


Balloons.—The Gross II., which was attached to the Blue force and stationed in a transportable shed at Hall, did some reconnoitring on the 13th, 15th, and 17th. On the first day it was fired at by machine-guns when at a height of 300–400 metres (990–1,320 feet), and on the 15th by field artillery at ranges estimated at 3,000 metres (3,300 yards), when at an altitude of 800 metres (2,640 feet). On the latter occasion no attempt was made to sink the trails, the projectile which would be used was stated to be ordinary shrapnel, and no knowledge of any special projectile was admitted. The airship was constantly disappearing in the clouds and would probably have been very difficult to range on. On the 14th, owing to a burst tube, the airship had to land in the open near Oberschupf at 3 p.m. Gas wagons were forwarded by rail, and by 11 a.m. next day the balloon was filled up and the damage repaired. The balloon is credited in a number of journals with having had a wireless telegraph equipment, but on the 15th signals were being made from the car with a flag, and an officer was noted watching them with a glass and dictating to a man taking notes.

The Zeppelin III. did not turn up from the Frankfort Exhibition till after the manœuvres, including the conference, were all over on the 17th instant. It had collided with an oak

Rough Sketch of temporary Field Telephone Office established at 5th Bav. Div. H.Q. 1st Day.

It forms a solid table for writing, &c., and protects the instruments from being kicked or trodden on.



{ Table or Counter, possibly tailboard of wagon, on which
S. officer could lay his map and rest his arm while
holding up instrument to his head.

A. Uprights, ordinary telegraph poles.

B. Horizontals on which the telephone batteries, &c. were
slung and on which the operators rested their arms
when holding instruments to their heads. The distance
between horizontals about 5 feet—sufficient for 2 men.

C. Lashings.

tree, bent the rear propeller shaft, carried away the driving chain, and twisted both blades of the right rear screw.

Machine Guns.—The use of covering fire was distinctly noticed in the attack by the 1st Bavarian Division on the second day, when a battery (*Abteilung*) of machine guns covered the advance of the division from a flank at about 1,500 yards range. It was understood that the idea prevails that machine guns would be useful in taking the place of artillery in a close country, especially if a campaign in such a country were fought overseas.

Machine guns were never seen entrenched. Though the guns were repeatedly heard it was often very difficult to locate them, so well were they placed in rough ground.

Mechanical Transport.—It is stated that 400 motor-tractor vehicles were employed at the manoeuvres. The Volunteer Automobile Corps had 38 vehicles present out of its 60.

The cavalry formations on both sides had power traction supply columns formed with the nine power traction trains bought during the summer from Messrs. Dixi, Duerkopp, Lloyd, and Mulag, the N.A.G., Podens, Stoewer, and Gaggenau, together with vehicles hired from a company formed to work Daimler lorries; as also the Bussing lorries belonging to the power traction section of the Transmission Troops.

The 17 foreign officers quartered outside the manoeuvre area were brought to it every day by motor instead of as formerly by the railway. The general officer commanding the Red army had four cars, the general officer commanding the XIVth Corps and its divisions, eight cars, and the Prussian War Office four cars. It is understood a similar distribution was made to the Blue army.

It is stated that power transport was to be utilized for the rapid movement of small bodies of infantry and pioneers, the former to support the cavalry, the latter to construct and repair obstacles. It is not known whether this was done or not. Various newspapers mention armoured cars as having been used at the Imperial Manoeuvres, but it is believed that the only three that were tested this year were attached to the Guards Army Corps.* Expert opinion seems to be generally against armouring motor cars for field work, as it greatly decreases their mobility. Several experienced officers stated that they would greatly prefer machine-guns on cars without any armour, which would be used merely to bring the guns quickly to a threatened spot, but which would not be brought into the firing line.

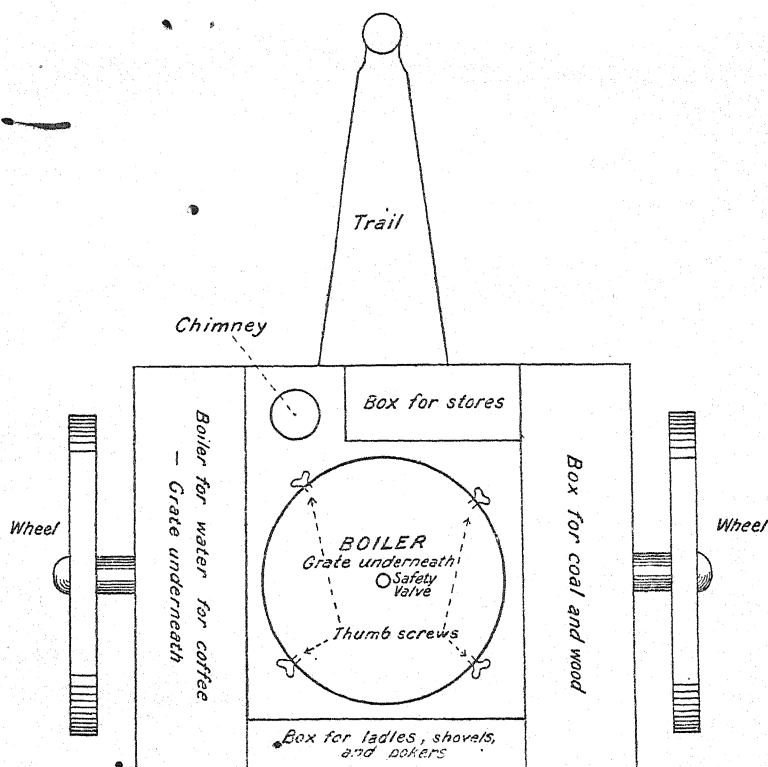
Motor Cycles.—Very few motor cycles were seen this year—they seem far less numerous in South German army corps than in North German. One hundred of them are said to have

* See page 129.

been present with the Red army, ridden by volunteers of the *Deutsche Motorfahrer Vereinigung* and distributed as follows:—Manœuvre directorate, 58; army headquarters, 3; general officer commanding the XIVth Corps, 3; general officer commanding the cavalry, 2; 28th, 29th, and 39th Divisions, 4 each; "A" Cavalry Division, 3; Field signalling detachments, 17; reserve, 2. It is believed that trials were made this year with small 3 and 4-wheeled cars for orderly work. They are said to be more useful than cycles in wintry weather.

Field Kitchens.—A plan of the kitchen is shown below. It is a good machine, but it can only stew or boil, which is a drawback. The stew seen made was a thick pea soup, not much meat being used. The pea flour is made up into bricks measuring about 4 inches by 2 inches by 1 inch and looks like bath brick. The soup or stew is served out in a ladle measure holding about a pint. On service a man gets 1 ladleful, on manœuvres an increase of 50 per cent. is given. The grates burn both wood and coal.

Rough Plan of Travelling Kitchen.



GERMANY.

PART II.—ARMY CORPS MANŒUVRES.

NOTES ON THE MANŒUVRES OF THE GUARD, IIIRD, VITH, XTH, XITH, XVIITH AND XIXTH (2ND ROYAL SAXON) ARMY CORPS.

The manœuvres of the Guard, IIIrd, VIth, Xth, XIth, XVIIth and XIXth (2nd Royal Saxon) Army Corps took place in the neighbourhood of Soldin and in the country south of Arnswalde, in Brandenburg (Frankfurt) and Silesia (Liegnitz), near Breslau in North Hanover, in the country west of Cassel, east of the River Vistula, and near Chemnitz, respectively. It may be noted that with the exception of the XIth and XIXth Army Corps, the German military authorities attached the British representatives to the same army corps as they did last year.

METHOD OF CONDUCTING THE MANŒUVRES.

These manœuvres were again conducted in accordance with the principles laid down in the Manœuvre Regulations (*Manöver-Ordnung*) of 1908, and few deviations from these principles are reported. The difficulty of controlling the civilian spectators is, however, again generally referred to, the arrangements made as regards military police and specially detailed orderlies being reported as inadequate in some cases.

Schemes.—The general and special ideas were once more remarked on as regards their conciseness and simplicity, and commanders were given full liberty of action during the period of operations.

We find in the XIth Army Corps that the movements of the imaginary main bodies of both sides were altered, when necessary, by the directing staff with a view to controlling the operations, thus:—

A special idea was issued daily, and by means of moving the main body of Red or Blue (an imaginary army corps) backwards or forwards, the forces taking part in the manœuvres were made to move in the direction required by the directing staff so that the troops might be billeted or go into bivouacs in places already arranged.

Conferences.—Some of the British officers attending these manœuvres were invited to attend the conferences which were held daily after "cease fire" had sounded. On these occasions the directors of manœuvres would, if necessary, take the opportunity to interpose in the course of

operations in order to guide them in the required direction. The conferences are reported to have lasted from 35 minutes to 2½ hours.

Great importance is attached to these conferences; bad mistakes committed by officers during the operations and which are made the subject for adverse criticism by the director of manœuvres may, in the case of the higher commanders, lead to their removal from the service.

The chief criticisms of the directors at the divisional and corps manœuvres of the Xth Army Corps are given in a report as follows:—

“The chief criticisms of the commander of the 19th Division were:—

1. Inclusion of unnecessary detail, and departure from recognized forms in framing orders.

2. Subordinate commanders not allowed sufficient scope for initiative.

3. Although the cavalry reconnaissance was on the whole good, more stress should be laid on differentiating between distant and close reconnaissance. “Experience proves that in 90% of cases reports as to numbers are largely exaggerated.”

4. A zealous officer who reported that his men had waded a stream breast high was severely reprimanded and told that in the interest of health such action was rarely permissible at manœuvres.

Among the criticisms of the army corps commander were:—

1. That although officers recognized the necessity for wide extensions of the firing lines, the latter were closely followed by supports in close column when the conditions of the ground and the engagement rendered such formations inadvisable.

2. That positions taken up with a few men to deceive the enemy and cause him to deploy must be actually held strongly enough to achieve this object.

3. That reserves must be composed of complete units under their own commanders and not be formed from several units.

4. When a time for assault is given it should be a definite hour, not “daybreak,” as in the orders of the 20th Division.

5. Indiscriminate and too great use of *Leucht-pistolen* (light-ball pistols) during the attack on the entrenched position.

6. The corps commander severely criticised the perfunctory manner in which the wire entanglements were constructed on one occasion, as also the fact that an artillery brigade commander had left the entrenchment of his position entirely to the pioneers. No alternative entrenchments had been constructed for 3 batteries which were withdrawn from a hill in advance of the main position.”

Some especially interesting notes on conferences are given in a report on the XIXth Army Corps:—

“There were fewer speakers than at those held at British manœuvres; sometimes only one speaker, but the conferences themselves last longer than with us. The shortest took 35 minutes and

the longest nearly an hour and a half. The commanders do not speak, nor do the umpires, except on the rare occasions when they are asked a question. The arrangement commends itself. Commanders can hardly be expected to state their case without bringing into it a touch of the partisan,—instantly recognized and resented by the other side, and from that moment the discussion loses some of its impersonal tone. The assumption of absolute infallibility by the director may be carried too far in the Saxon army, it is true. Thus, on one occasion, His Excellency the Army Corps Commander gave a verdict against a lieutenant-general because the holding frontal attack made by the troops of that officer had been too weak, consisting, as it was supposed to have done, only of his advanced guard. The lieutenant-general said not one word in explanation or extenuation and accepted the ruling like a lamb. Next day he expressed his mortification at the undeserved verdict, as he had actually had no less than five battalions engaged in support of his advanced guard when the "cease fire" sounded. On asking why he had not, on a mere matter of fact, protested, he replied that later on the corps commander would hear from his own staff that he had overstated his criticism, and he would then be rendered justice in the mind of the chief arbiter; more than that he did not require. Had he remonstrated it would have been a bad example to young officers.

* * * * *

"To return to the conduct of the conference; only the director of the manœuvres speaks unless there are officers present senior to him, when they also speak after he has done. Thus, in the case of two brigades working against one another under the direction of their own divisional commander, he speaks and no one else, unless the corps commander happens on the occasion to be watching that division, when he, the corps commander, adds his remarks. When two regimental commanders are working against one another under the direction of the brigadier, and when the divisional and the corps commanders both happen to be on the ground, then the speaking reaches its maximum and the conference may easily last an hour and a half or two hours. It will be noted then, under such conditions, the smaller the forces the more numerous the speakers; the larger the forces the more restricted their number. But the main speaker, even if he be not the only speaker, is always the director of the manœuvres. He certainly does his business very thoroughly. Holding a map and notes in his hand, yet hardly ever finding it necessary to use them, he first gives a full and detailed narrative of the movements of each force. Only very occasionally does he refer to an umpire or a commanding officer for verification of detail. Any general officer who has conducted a conference will realise what memory and what a power of rapidly assimilating the reports of the umpires is hereby implied. Naturally so full a narrative takes a considerable time, perhaps half an hour. Next come the criticisms; then a full statement by the director of how he would himself have dealt with the Red or Blue problems, and finally (and invariably) a distinct, unqualified decision that Red or Blue have been respectively victorious or defeated."

Umpires.—Nothing special is to be noted as regards the system of umpiring, which appears to have been carried out in accordance with the Manœuvre Regulations of 1908. The general opinion is again recorded that the umpiring was good.

In the Xth Army Corps, the instructions issued by the Director last year (see "Report on Foreign Manœuvres, 1908,"

page 103) were adhered to, with the exception that no chief umpire was allotted to the cavalry :—

Before the army corps manœuvres, the commander of the Xth Army Corps again issued "Instructions for Umpires" amplifying regulations. These were as last year, with the following alterations and additions, the outcome of experience in last year's manœuvres.

To para. 2 is added :—

"The chief artillery umpire alone will give decisions as to the artillery duel.

"Assistant artillery umpires will only give decisions in cases of surprise or action at close ranges.

"There will be no cavalry 'arm' umpire; an umpire will be with each cavalry regiment. In case of necessity the senior will decide."

To para. 6 is added :—

"The ordinary officers detailed to assist umpires should be, if possible, of the same arm as the umpire. Each assistant artillery umpire will have one field artillery officer as orderly officer and four orderlies."

A new paragraph lays down that divisions themselves are responsible for replacing at once any umpire who may fall out.

Para. 14 is altered as follows :—

"The position of section umpires will be indicated by an orderly carrying a red flag with a white circle, that of the artillery umpire by a yellow flag with a blue circle."

The decisions of umpires were generally good and were promptly given, and movements ordered by them were promptly carried out. There was very little hitch in the operations at any time. According to British ideas, however, umpires were extremely lenient to cavalry. On nearly every occasion that a cavalry charge was attempted, it was adjudged successful.

It is reported that in this army corps the umpires did not wear white armlets, but merely a white cover to the head-dress.

Only orderlies to the umpire staff wore the armlet.

In the XIth Army Corps the arrangements for umpiring at divisional manœuvres were as follows :—

In the Manœuvre Instructions, a list was published giving the names of the officers appointed daily, from 12 noon to 12 noon, to act as umpires for right wing (Blue) centre, right wing (Red), cavalry and artillery, also umpires for the outposts of each force. The divisional commander acted as senior umpire.

During army corps manœuvres the arrangements were as follows :—

The director of manœuvres was General Freiherr v. Scheffer Boyadel commanding the XIth Army Corps. The umpire-in-chief was Major-General v. Kathen commanding the 83rd Infantry Brigade.

He had under him :—

For the right wing (Blue)	-	A colonel and three assistant umpires.
For the right wing (Red)	-	A colonel and three assistant umpires.
For the cavalry	-	A colonel and two assistant umpires.
For the artillery	-	A general and three assistant umpires.

The following orderly officers and orderlies were allotted to the umpire staff :—

To the umpire-in-chief	-	Three orderly officers and three orderlies.
To each umpire	-	One orderly officer and two orderlies.
To each assistant umpire	-	One orderly.

The system appeared to work very well, although some impossible movements were carried out, chiefly by cavalry patrols and occasionally by sections of infantry.

The recording officers were detailed daily, one for each force.

Distinguishing Marks.—The system, tried experimentally last year at the Imperial Manœuvres, of making both the Red and Blue forces wear grey-green helmet covers with the regimental number in red on the cover, the Red side wearing a red band round it, is now adhered to. When put out of action the troops merely remove their helmet covers. The Manœuvre Regulations of 1908 have been amended accordingly.

Casualties.—All reports are unanimous that “casualty flags,” authorized by the Manœuvre Regulations of 1908, para. 95, were in some cases not used at all, and in other cases as seldom as possible. In the Guard Corps these flags were apparently not carried.

From a report on the Xth Army Corps Manœuvres we gather that :—

“The commander of the 19th Division asked umpires to make as little use as possible of the ‘casualty flag,’ but on the other hand to give troops frequent and definite opinions as to the losses they would have suffered and what their own fire effect would have been in war.

“The actual simulation of casualties was only seen once, after an attack on an entrenched position, when a few men were observed with labels on their helmets indicating that they were wounded.”

With the Guard Corps, during divisional manœuvres, men were given slips and were left behind to be picked up by the ambulances.

As regards exhausted men it is stated that with the IIIrd Army Corps the procedure was as follows :—

“On the battlefield an exhausted man was seen lying alone with a Red Cross sign fixed on a short pole in the ground beside him ; a useful method of finding exhausted or damaged men.”

In the XIth Army Corps it was considered that training was lost to the officers and men by the simulation of casualties, and it was not practised.

Compensation for Damages.—The principles as laid down in the Manœuvre Regulations for 1908, paras. 150–153, were generally followed.

All reports contain notes on the system of assessing compensation for damage, but it is sufficient here to give an extract

from a report on the VIth Army Corps Manœuvres, in which the matter is dealt with in some detail. There is, however, nothing new in the procedure:—

Compensation for damage to crops is settled by a Compensation Commission consisting of the *Landrat* (chief civil official) of the District as President, one military officer of field rank, one official of the *Intendantur*, and two landowners of the district.

As soon as it is decided to hold manœuvres in a certain locality, which is apparently the prerogative of the corps commander, though the law prevents him from choosing the same piece of ground oftener than once in six years, the *Landrat* of each district concerned is informed. He in turn informs all the inhabitants and arranges to mark all dangerous spots such as gravel pits, quarries and blind wells with a pole on which a few black rags are hung. He warns all farmers to mark valuable crops and drained ground. Poles with a bunch of straw on the top indicate valuable crops, but drained ground on which it is forbidden to entrench, and on which artillery are not allowed to manœuvre or take up a position for fear of crushing the drain pipes, is marked by a pole with a St. Andrew's cross of wood on the top. Should the owner fail to put up this warning sign, he will only be paid compensation at a very reduced rate for the damage done. Immediately after the manœuvres each owner sends his detailed claim for damage to the *Landrat*, who communicates with the two military representatives, and fixes a day for commencement of the work. The intendant has other work to do during the manœuvres, but the military compensation officer rides about and makes notes which serve as a check on the owners' claims.

The Board considers each claim in turn, if necessary visiting the ground, and adjudicates on the value of the damage done, deducting from the claim whatever they consider necessary.

For example, a farmer claims for a field of potatoes: the Board find $\frac{1}{4}$ of the crop quite good, $\frac{1}{4}$ utterly destroyed by entrenchments, and $\frac{1}{2}$ damaged, but still saleable for conversion into alcohol. The Board would allow him $\frac{1}{4}$ of his claim in full and $\frac{1}{2}$ in addition, less value of the estimated amount of potatoes available for spirit distillation.

There is no appeal from the Board to a court of law or any other authority.

At the conclusion of this adjudication a bill for the amount due to each man in the district is made out and signed by the Board. This bill forms the intendant's voucher for the military charge, and he writes as many cheques as are necessary to meet the claims, sending the whole to the *Landrat* who distributes to the individuals concerned. These must then within two months present their cheques at the local district treasury and receive the amount for which their claims have been settled.

Umpires were specially warned in "Manœuvre Standing Orders" to do all in their power, by their decisions, to avoid damage to the valuable sugar-beet crops.

Troops were specially forbidden to enter the numerous small copses which are kept up by the land proprietors as preserves for game. This rule, which was most rigidly enforced, led to one or two unreal situations.

For these manœuvres 4 such commissions were formed, but the same military representatives were detailed to two of them.

The military members of the commission were authorized to send a requisition on any commander, whose force was too distant for him to observe, to appoint a special officer to take notes of the damage done by such detached force.

Unnecessary damage had to be reported at once to the divisional general, who also required from the military member of the Board a statement showing (by units) the damage done separately for movements, operations, &c., and in bivouacs also, as to what were chargeable to the carelessness of individuals.

REMARKS.

Orders.—All reports comment most favourably on the ease and rapidity with which orders were issued in the field, and the care taken to include all imaginary auxiliary services in those orders.

In a report on the Xth Army Corps we read that:—

“when sending in their operation orders, commanders of sides attached their orders as to replenishment of ammunition and supplies (imaginary), and also copies of telegrams to their (imaginary) main bodies, or neighbouring formations, containing an epitome of their orders and all necessary information.”

The issue of orders during operations in the XIth Army Corps was thus regulated:—

“In the field a representative of the general reserve remained with the general officer commanding, who usually took up his position near the artillery position where the artillery commander and his staff were. On a new situation arising, the orders were issued as follows:—The general stated his intention to the general staff officer who at once dictated, in the presence of the general, a set of orders to the orderly officers; the medical officer and the supply and transport officer stating their requirements as far as their own services were affected. Then each officer in turn repeated the portion of the orders which affected the unit to which he was being sent.

“All adjutants were ordered to assemble daily at 4 p.m. by which time the general knew his intentions for the night; orders were then issued for outposts, bivouacs, &c.”

Some remarks on the issue of orders in the VIth Army Corps are interesting:—

“Orders were badly duplicated by an inferior and rather worn out cyclostyle. They were sometimes signed by the general officer commanding in person, at other times ‘By order’ by the general staff officer. Officers taking down orders from dictation in place of signature wrote: ‘Ob. Kdo.* 11th Division.’ The telegraph and telephone were used almost entirely for the issue of evening orders.

“Orders in the field were issued by dictation to assembled adjutants. When, for any reason, these could not be collected conveniently, the general staff officer impressed any officers at hand to take down the number of copies of orders required, which were then despatched by orderlies.”

* * * * *

“Before a messenger, whether officer or trooper, rode off with a verbal message, he repeated it in the exact words in which given.

“Dictated orders were similarly read over by one of the officers to whom dictated, chosen at random by the general staff officer, as a check to their correctness. Alterations, changes and delay in

* Ob. Kdo. = Ober Kommando, that is Headquarters Staff. (General Staff.)

taking down orders from dictation, were remarkably conspicuous by their absence. Questions as to meaning of orders or requests for further details or information were never heard. The issue of orders was strikingly rapid.

• “All operation, movement, bivouac, cantoning and supply orders were issued by the general staff officer.

• “Bearer companies, ammunition columns, field hospitals and trains, though not actually present, were always taken into consideration and appropriate orders issued.”

Of still greater interest, connected with this subject, is an extract from a report on the XIXth Army Corps manoeuvres:—

“On the 15th of September, His Excellency Lieutenant-General von Laffert moved out with orders to attack another division. I rode with the commander from start to finish of the march and heard each message as it was brought in by the cavalry patrols. At last a moment came when the lieutenant-general felt he had a sufficiently clear notion of the position on which the enemy was entrenching himself. Thereupon he decided to dismount by the side of the road and to make the necessary dispositions.”

“Here also his staff officer took his stand, and, hardly looking at the map and raising his voice so as to dominate the rattle of the passing artillery, dictated the orders for a difficult and complicated attack over a blind and broken country to a group of representatives of units. The rapidity of his dictation was only restricted by the rate at which these officers could take down his words. When all was said, two or three questions were asked by the officers taking down the orders; questions unhesitatingly and clearly answered by the commander himself. One of the party was then asked to read over what he had written as a check, and then all the officers got on to their horses and rode off to their units, whose march towards the enemy had not meanwhile been checked. I timed the business, and, from beginning to end, it took just eight minutes.”

* * * * *

“The most striking point on this and other similar occasions was the remarkable memory of the general staff officer. Never did he seem at a loss for a place, a unit, or a distance. It is the same highly trained memory which makes the lecture of the director at the conference so interesting and so valuable.”

Staff.—The excellent and systematic working of staffs is again commented on in all reports.

The organisation of the staff of a division in the VIth Army Corps may be quoted here as an example:—

The Staff which accompanied the general consisted of—

- (a) One general staff officer, a captain, who invariably rode with the general officer commanding.
- (b) One divisional adjutant, a major, for routine work.
- (c) Principal medical officer.
- (d) Assessor intendant.
- (e) Officers in command of the portion of the corps telegraph detachment.
- (f) Senior train officer.
- (g) Two orderly officers—lieutenants—one from artillery and one from cavalry.
- (h) Orderlies:—
 - 2 cyclists from infantry.
 - 2 cavalry troopers and one farrier.
 - 1 mounted man from artillery with “scissor telescope.”

(i) Clerks :—

2 for general staff officer.

2 for divisional adjutant.

2 for intendant.

1 sergeant (p^{ay}master) temporarily attached for account work.

(k) Billeting staff—one under-officer and one trooper from cavalry.

(l) One police gendarme.

(m) Bâtmen and horseholders for the officers.

Such a clear picture is drawn of the excellence of the staff work and staff officers, and the general knowledge of the situation on the part of all ranks, in a report on the XIXth Army Corps manœuvres that the extract given below merits particular attention :—

“ Our staff work in the field is definitely and distinctly on a lower plane of efficiency than that of the Germans. The explanation is simple and implies no permanent disability. A system of four or five years' growth cannot expect to stand comparison with one which has been in full working order for as many decades. Still it is well that there should be no mistake about the facts.

“ It is easy, of course, to state an opinion for what it is worth ; it is extremely difficult to persuade others to accept that personal opinion unless some supporting proofs can be adduced. But proofs are not readily forthcoming ; still, an attempt will be made to give one or two illustrations of what is meant.

“ The 20th of September was the first day of the manœuvres of the XIXth Army Corps. The General Idea was interesting. The XIXth Army Corps was advancing eastward with its two divisions in column on the same road with an interval of some 15 miles between them. Opposed to it, and advancing westwards, was the XIIth Army Corps with its two divisions in line, but with a gap of some 20 miles between them.

“ By 2 o'clock in the afternoon the leading division of the XIXth Army Corps (the 24th) had seized a high and commanding feature and was entrenching in order to hold on there until its other division (the 40th) could come up to its assistance. The two divisions of the XIIth Army Corps had practically made their junction in front of the entrenching 24th Division and were threatening not only to outflank it, but actually to round it up.

“ Simple as the dispositions may appear on the actual field, the extent covered by the XIIth Army Corps was so great, and the ground was so woody and broken, that it was extremely difficult for an onlooker to form an idea, even approximately correct, of the general situation.

“ Happening at this time to be in the neighbourhood of the artillery of the 24th Division, I approached the staff officer to the artillery commander—a young captain. I told him that I was confused as to the exact state of affairs and that, especially on the flanks, it was most difficult for me to follow the movements of the troops or to make out clearly the relative position of the Red and the Blue. ‘ I think,’ he replied, ‘ I can make it quite clear to you in one minute.’ So saying, he pulled out his map, on which was painted, in red and blue washing colour, the position of the troops of both army corps as he believed them to be at that moment. He told me how victory or defeat were actually hanging in the balance. ‘ In about another 20 minutes’ he said, ‘ the enemy should get up his guns on those wooded heights to our right rear. If the commander of the XIIth Army Corps once succeeds in establishing his artillery

'there he can search the whole of our position in reverse. Our only hope is in our own 40th Division, which, half an hour ago, had reached such and such a place. As you see I have placed it so (pointing to his map) for I am sure that if His Excellency the Lieutenant-General has had the facts properly put before him, he will certainly have diverged to the southwards and will anticipate the enemy in his designs.'

"It turned out as my young friend had prophesied. All his indications indeed proved perfectly correct; the advanced troops of the 40th Division arrived on the big ridge to the south, drove off the ascending hostile guns, and saved the day by a margin of about 10 minutes.

"The point to be made here is that the young staff officer of the artillery, with extremely responsible, anxious work of his own on his hands, had yet found time and means to make himself acquainted with the general situation.

"Several times I was similarly quite astonished by the general dissemination of knowledge right through regimental officers and staff.

"How was it done? The first factor was the keenness and curiosity of the officers themselves.

"The second lay in the custom whereby all messengers and patrols, whether officers, non-commissioned officers or private soldiers, called out their news or their message to any officer whatsoever, or any group of officers, of their own side, in whose neighbourhood they might chance to be passing. Thus, 'A brigade of Red field artillery escorted by two companies of infantry marching north-west through Eichhornchen by the Chemnitz main road at 11.10 am.' The system of constant general dissemination of intelligence was not confined to the field of operations but was put into practice all over the manœuvre area. Such an incident as the following would frequently occur:—A small party of soldiers might be overtaken or encountered marching along the road, when the senior non-commissioned officer or private soldier invariably would halt, front towards his superior and call out the business upon which he was engaged. For example:—'On march from Pennig to Rubenstein to arrange for billets.'

"The methods outlined are, it would seem, calculated not only to stimulate the interest of all ranks, but to render each officer and man more consciously and actually important as instruments in the general military scheme."

The Three Arms combined.—There appears to be nothing of great importance to note as regards the co-operation of the three arms; all reports endorse the notes on this subject on pages 107–113 of the "Report on Foreign Manœuvres, 1908." The spirit of the offensive is stronger than ever, and the artillery is reported on occasions to have supported the infantry in the attack to within such close ranges, 1,000 yards and under in the open, that the operations assumed an unrealistic aspect in consequence.

With the IIIrd Army Corps it was noticed on two occasions that an artillery officer with signallers accompanied the infantry attack in order to maintain communication with the guns, as laid down in the German Field Service Regulations, page 212 (Translation).

The co-operation of cavalry with the other arms is not favourably commented on, and all reports are unanimous as

regards the entire neglect of close or local reconnaissance on the part of all arms, especially during an engagement.

The impressions gained at the manœuvres of the XIth Army Corps are recorded in a report as follows :—

“The principal impressions left upon the mind were the same as those mentioned on page 82 ‘Report on Foreign Manœuvres’ 1908, except :—

(1) That extensions were greater than expected and in many cases troops were extended before there was any necessity.

(2) Indirect laying by the artillery was seldom used.*

(3) If anything, there was too much of the offensive spirit. On one occasion, infantry in defence, holding a strong position with a good grazing field of fire, left their position and came into the open to charge the enemy when they could have inflicted heavier losses by rifle fire.

(4) The excellence of German discipline. The corps commander, at a conference, referring to some infantry who at an attack at dawn had not charged through a ploughed field as quickly as he thought they might have, said, ‘Kindness is a human virtue, but in military matters it is a vice.’”

In a report on the manœuvres of the XIXth Army Corps the impressions as regards the co-operation of all arms are thus recorded :—

“Tactical co-operation was admirable. The readiness with which cavalry, artillery and infantry play up and, if needful, sacrifice themselves for the common good, would be a revelation had not the same characteristic already been noticed amongst the Japanese. No commander in any rank appears to care whether his own squadron, battery or battalion is going to gain distinction. That is a small matter compared with the supreme issue of victory or defeat to the Red or to the Blue.

“The three arms have true sympathy with one another’s difficulties, and they are usually able to express their sympathy with effect; partly because personal ambition is sternly discouraged by authority; partly because the officers of the whole Saxon army are one family, knowing one another as individuals; partly because commanders have closely studied the theoretical potentialities of the other arms, and partly because all officers are careful to keep themselves well posted as to the actual position and probable action of other units working with them in the field.

“In the earlier stages of a manœuvre, on the march, during the reconnaissance, at the issue of orders, and in the opening phases of an engagement, the co-operation thus secured is the feature which, above all others, renders the German army so potent an instrument of war.

“But how as regards the final phases of the fight?”

“It is here, perhaps, that we may discover at least one or two chinks in the armour of the Central European Colossus.

“Reference has been made, both in the general observations and in the accounts of operations, to the spirit of the offensive—offensive at any cost—so sedulously fostered and so universally acted upon in the German army. Time and again attacks are pressed, with but the briefest indication of artillery preparation, over the most perfect fire glacis against troops entrenched or troops concealed in villages and woods. Then, before the fire of the defence has been allowed sufficient time to thin the numbers and shatter the nerves of the advancing line, the defenders themselves quit their cover and expose themselves in general counter attack over the open ground. The

* All reports do not agree as to this.—(General Staff.)

theory of a local or partial counter-attack finds no favour. Entrenched troops pass *en masse* from the defensive to the offensive. On either side guns gallop up into the lines of charging bayonets to support or drive back the assault. The cavalry, determined not to be outdone, dash helter-skelter into the *melée* with their sabres and lances. Chaos ensues. The battlefield, lately so up-to-date and modern, suddenly presents to the eyes of the astonished spectator a reversion to the tactics of Frederick the Great.

"The Germans are ever preaching fire effect, but here we find fire effect prematurely discarded in favour of that primitive *arme blanche* which is the negation of modern armaments.

* * * * *

"The officers of the Saxon army are excellent. Fine fellows; intensely in earnest; and devoted to their profession.

"The Saxon rank and file are notably smaller than the Prussians and in general are wonderfully well disciplined.

"But, if the discipline is good and if the men appear to be generally quite happy and contented, there is an extraordinary lack of the actual joy of battle. The attack—the assault—the cheer—the counter-attack with the bayonet, are all perfectly mechanical. The expressions on the men's faces remain impassive; dull, bored; exactly as when they were wearily trudging along to quarters in column of route.

"It may be said that discipline which is so admirable that the men cease to have feelings of their own is not a discipline to be too much envied."

The question of deciding the issue of the day by an enveloping attack combined with a determined frontal attack to hold the defender to his ground is brought out in a report on the VIth Army Corps manœuvres:—

"In every case frontal attacks were pushed with great determination to about 300 yards from the enemy's position, but the decision was always left to the enveloping flank attack which was strongly supported and pushed with great rapidity. Every endeavour was made to bring up masses of men unseen as close to the flank of the position as possible before they were launched to the attack."

Night operations.—On the question of night operations an extract from a report on the XIth Army Corps Manœuvres is of interest:—

"There was a great deal of night work during the manœuvres. Both the divisional and army corps manœuvres ended with an attack against an entrenched position. At the divisional manœuvres the night attack ended with an assault at dawn, and at the corps manœuvres the assault was delivered before dawn.

"The Germans, though they see the necessity of practising them, are very averse from night assaults. They say that the enemy will not remain in their trenches to be assaulted but will leave them and make a counter attack. Then there is bound to be confusion, and the result must, to a great extent, be a matter of luck.

"One night the 22nd Division took up a defensive position. Six battalions formed the firing line and local reserves, while the remaining seven acted as a general reserve on the weak flank and were in bivouac behind a hill.

"For reconnoitring purposes the position was divided into two parts, each infantry brigade being responsible for one half. The general officer commanding was in telephonic communication with the right rank of his position, the general reserve and the centre,

where he took up his own position; a telephone line was also laid between the general reserve and the village 2 miles in rear, where the divisional office was established for the night.

"The counter attack was launched at 4 a.m., just before the final assault took place. To help the final assault, the enemy's guns, which had not replied to the defender's artillery fire, opened a heavy fire, but as there was no communication between the artillery and the assaulting infantry, it is probable that this fire would have inflicted equal losses on their own troops as on those of the enemy. The attackers had located all the enemy's trenches from a high hill during the previous day.

"The columns were led by compass bearings, and the country being quite open presented little difficulty for night marching. The attackers kept two battalions in reserve, but these never came into the fight. This was much criticised, as a general reserve was always to be employed to complete the victory and never, in the first instance, to cover a retreat.

"The searchlight* was worked well, showing up the assaulting columns as clearly as if by day. One searchlight, however, burst, burning the faces of two of the operators. *Leuchtkugeln* (light balls) were employed both by the attackers and by the defenders: they lit up the ground for two hundred yards, but their defect is that they cannot be thrown sufficiently far to show up the enemy only.

"On the other occasion of a night attack, communication between the assaulting columns was maintained by mounted patrols. These men stumbled about in the dark, lost their way, and served no useful purpose. The general method of keeping communication between the columns advancing across country, preparatory to an attack at dawn, was by means of pocket electric torches. During night marches on roads, artillery officers gave signals to advance or to halt by means of bicycle lamps, which are issued by government.

"During the retirement of the Blue force one night, the commander detailed an infantry rearguard in addition to the whole of his cavalry which was covering the retirement. The infantry rearguard was formed as if the retirement was being carried out by day, communication between the parts of the rearguard being kept up by single men. The general considered that it was better to have all infantry closed up and to form the rearguard out of cavalry only."

Infantry.—The appearance of the infantry is favourably referred to throughout, and their marching powers are, as usual, generally praised. Distances varying from 13 to 30 miles appear to have been covered under trying climatic conditions, and the number of men falling out is reported, in all cases, to have been small. Those who did were mostly reservists. Of these there appear to have been from 20-40 per company, except in the case of regiments of 2 battalions on the peace establishment, which were made up to 3 battalions by a complete battalion of reservists. In the VIth Army Corps this was done by subdividing the 2 battalions of the peace establishment into three and by then adding sufficient reservists, both officers and men, to bring the battalions so formed up to peace establishment. There are 33 of these regiments and a third battalion of reservists is always formed for each of them at manœuvres. Many reserve officers are reported to have been present with all units.

* No description of the searchlight equipment is given.—(General Staff.)

As regards the moral of the men, opinion is expressed in one report that :—

“Strict discipline rather than intelligent interest is the motive power. Small groups of men away from the eye of the officer or non-commissioned officer seemed to be at half-pressure.”

Tactics.—The reports show generally that the tactics employed by infantry at manœuvres are in accordance with the principles laid down in the most recent regulations, though they appear to vary in minor details in the various army corps. They are well described in a report on the Xth Army Corps manœuvres, which reads as follows :—

“There seem to be a curious lack of uniformity regarding the extension of infantry firing lines in the attack. On one occasion a battalion was seen at 1,200 yards* from the enemy's position with two companies extended at 6 paces interval at least. The ground over which they had to advance was devoid of cover. At the same time these firing lines were followed at about 300 yards only by supports in close column.

“On other occasions firing lines rarely extended to more than two paces. On all occasions supports followed in close column as long as possible. When plenty of time was available, as in the attack of a regularly defined position, the extensions seemed to be wider than in the case of the encounter battles which took place twice during the divisional manœuvres.

“Firing lines in the attack rarely opened fire over 800 yards,† and no widely extended line was seen to fire. The main idea is to keep troops in close formations as long as possible, and to get as far as possible before opening fire.

“From about 800 yards advances were made by sections (one-third of a company) at a time. Rushes were for about 80 yards and were covered by the fire of the remaining sections. No rushes by groups or single men were seen.

“Rapid fire was employed on all occasions mentioned in the regulations, namely :—In the attack just prior to the assault, in the defence to repulse an assault, to repulse cavalry, and on gaining a position to pursue the retreating defenders. These occasions are recognised by all ranks without further orders. The maximum rate aimed at is from 12 to 15 rounds per minute.

“The fixed sight alone is used at 400 metres and under.‡

“No firing in movement is practised during the final assault.

“Fire discipline was very good. The whistle was not heard. Orders, ranges, &c. were passed quietly along the ranks. Sights were carefully taken. An excellent feature of the German rifle are the figures at the side, as well as on top of the bed of the backsight. This enables group leaders to see that sights are correctly adjusted even when lying down.

“No special closing of men to get them into hand during the attack on reaching cover was seen. Indeed, the men were so closed up and so much in hand all the time that this was unnecessary.

* Two other reports state the extension took place, at wide intervals, at 2,000 yards from the hostile position.—(General Staff.)

† This is generally confirmed in other reports.—(General Staff.)

‡ The fixed sight is 400 metres. Another report says it can be used up to a maximum range of 700 metres against infantry, and 900 metres against cavalry. The infantry regulations say up to 700 metres against cavalry.—(General Staff.)

The difficulty appeared to be to get men extended again, if necessary, after a successful assault on a locality.

"Packs were never discarded during the assault, and the final "rush" was always very slow in consequence."

The experience gained from the manœuvres of the XIth Army Corps is thus recorded:—

"The infantry extend, if anything, too far away from the enemy. On one occasion a whole brigade was seen extending 4 to 5,000 yards from the hostile position. The extension was at first from 5 to 8 paces for the firing line. Behind this line, and about 500 yards in rear of it, followed the supports extended to about 2 paces, and further in rear, perhaps another 500 yards, the reserve, in section columns. If a regiment were carrying out the attack, the firing line and supports would, as a rule, consist of 2 battalions, and the remaining battalion would be in reserve. As the attack progressed so did the lines merge into each other, until at about 600 yards from the enemy the line was shoulder to shoulder.

"Whether these extended lines fire or not depends on whether it is considered they cannot advance without first subduing the enemy's fire; they hope to get within 1,000 yards of the position before firing. The guiding principle of extension is that troops must extend to get over the ground without undue loss and the amount of extension depends on the nature of the ground, but that when it comes to a question of beating down the enemy's fire the firing line must be built up sufficiently strong to do so, and for this purpose the Germans consider that it will be generally necessary to have it as thick as possible. From a point about 600 yards from the enemy's position the advance was made in rushes of sections, the length of each rush being about 100 yards. During this movement, sections support one another with covering fire. Sections were frequently seen closing under cover during an attack and then deploying again, but full advantage was not taken of the folds of the ground during the rushes, and better cover could often have been found by making the rushes either a little shorter or longer.

"No firing in movement is ever practised, as it is considered a sheer waste of ammunition. When it is considered that rapid fire should be used, as under the circumstances enumerated in the regulations, the command "*schneller*" ("quicker") is given.

"As the soldier has shot with his rifle at a target up to 400 metres he is generally given the command "*frei*" ("independent fire") when this range is reached. This allows him to aim at his target, high or low, according as to how his rifle shoots. If the command "*frei*" is not given, he must always aim at the enemy's chest."

We get another picture of the system of attack from the VIth Army Corps:—

"On one occasion the infantry advanced in a succession of extended lines, covered by a firing line extended at 12 to 15 paces, which opened fire at over 2,000 yards from the enemy's position. As this approached the position it was gradually built up by reinforcements of groups of a few men (4 to 8), till the intervals were reduced to about 3 or 4 paces, at about 1,500 yards from the position. Hitherto the advance had been by large bodies, from this point the advance was by group rushes, covered by the fire of those halted and still reinforced by groups from the lines in rear, which sought cover, closing where good cover offered and shaking out again to advance. At about 400 yards from the position the line had reached its maximum density of a thick closed line. Here it halted, and the entrenching tools gradually built up a certain amount of cover, some men working lying down while their comrades fired.

"On other occasions the advance was carried out by long lines moving simultaneously on a very small extension, and without firing till within about 1,200 yards of the enemy, when fire was opened and the line speedily reinforced to its maximum density."

It is reported that in this army corps one brigade laid aside its knapsack equipment before assaulting.

The system in the XIXth Army Corps was as follows:—

"In the attack, the infantry were accustomed to deploy into line of section columns as soon as they got within long range fire. Once only were they seen caught by artillery in column of route, and that was when a commander had misjudged the contour of the ground in working round to a flank. At about 1,500 yards from the enemy the leading line of section columns deployed into a firing line if the country were open, closing back again whenever good cover was attained. After a distance of about 1,100 or 1,000 yards from the enemy had been gained, the firing line did not close any more unless it was charged by cavalry, and the supports were extended and began to reinforce. The reserves, such of them as were left, were kept in close order until the very last, if the ground admitted of such a formation and, sometimes, if the ground did not admit of it.

"At the commencement of the infantry fight extensions are at two paces, but towards the end the men are shoulder to shoulder and often, in places, stand two or three deep. At almost every conference the director of manœuvres found fault with the density of formations, but the regimental commanders either could not or would not act upon these criticisms.

"Supports and reserves are more rapidly absorbed into the firing line than with us, and often by the time a battalion has got within 700 or 800 yards of the enemy it consists only of a firing line, and depends entirely on the regimental or brigade reserves for further help.

"As regards cover, no soldier in the world is better or more carefully taught the use of the ground than the German soldier during his company training. But owing to the pressure of the principle that from a comparatively early stage of the attack (say 600 or 700 yards) as many rifles as possible must be crowded into the firing line, this careful individual training of the men is, to a great extent, thrown away upon the battlefield."

The Defence.—A report on the Xth Army Corps gives some details as regards the procedure in the defence:—

"Infantry in the defence usually occupied positions just below the crest. As many men as possible were crowded into the firing line. On several occasions it was impossible for men to use their rifles freely. Where convenient cover for supports was not available just behind the firing line, these lay flat at the heels of the firing line.

"Fire is opened in the defence at favourable targets regardless of distance."

"Infantry in position quietly awaited the assault, opening rapid fire. No counter-charging out of the position by either firing line or supports was seen.

"No supply of ammunition in action was seen practised."

* Other reports say at 900 and 2,000 metres.—(General Staff.)

Entrenchments.—With the Xth Army Corps, entrenching was carried out as follows:—

“There was no entrenching in the attack. During divisional manoeuvres a position was rapidly entrenched by a brigade. The trenches were sufficiently deep to give cover kneeling only.

“The positions of the trenches were well chosen on the false crest.* They were discontinuous and well supported one another. They held one section or more according to circumstances. Concealment was not very good though earth was scattered. There was no time to dig communication trenches. Supports lay either flat on the ground behind the firing line or in hollows 50 yards in rear.

“When the 19th Division took up an entrenched position on the night of the 21st, the entrenchments were of a more developed character but were disappointing, considering that 11 hours were available for the work. The majority of the trenches were constructed for a company at war strength and were 150 metres long.

“The traverses were 12 paces apart, and there were two overhead shelters between each pair.

“Zig-zag communication trenches, about 7 feet deep, led to support trenches 6 feet deep, with no overhead cover, 50 yards in rear.

“No head cover was provided in any trench except for 2 yards where the trench was roofed in for observers.

“No drainage arrangements appear to have been made.

“Wire entanglements were constructed at a distance of from 20 to 30 yards in front of the trenches. These entanglements were very poorly carried out and were severely criticised by the army commander.

The procedure with the XIth Army Corps appears to have been this:—

“No entrenchments were made during the attack by day, but it was realised that in war they would have to be constructed. By night the assaulting infantry, if an assault at dawn was being prepared, entrenched at from 80 to 200 yards from the enemy's position. Directly the defenders became aware of this they left their trenches and charged them before the attackers had had time to dig themselves in.

“The trenches made by infantry, except when aided by pioneers, were of little use. On one occasion when the Blue force took up a defensive position by day, the infantry strengthened their position with their small entrenching tools, half the men digging and the other half acting as covering party, the latter being only about 10 yards in front of the trenches. A pioneer company then came up and quickly deepened the trenches. On another occasion when the division took up a defensive position prepared by 2 battalions and 2 pioneer companies in 24 hours, the work was very good. The trenches were just below the crest line, lengths for sections with zigzag approaches leading to them from a support trench in rear. They were of low command, no head cover, elbow rests made of wood, traversed every 15 feet, continuous communication along the front by means of fire trenches, and recesses cut for ammunition. Single guns were placed in the infantry trenches. About 120 yards in front of the trenches was a continuous high wire entanglement (3 rows of posts) running along the whole length of the position. Openings were made in this at intervals for a local counter attack to pass through. Where the entanglement was not under the fire of the defenders, deep holes were dug close up to the entanglement at

* Other reports describe the trenches as being “forward of the skyline” or “just below the horizon.”—(General Staff.)

intervals of 10 yards, in which sentries were posted in order to shoot anyone trying to cut the wire. Dummy trenches with white paper cocked hats were also constructed, and the general officer commanding gave orders that the trenches were only to be manned at first by a few men with orders to fire rapidly. On the top of the parapet the helmets of the other men were to be placed, while the men themselves were to remain under cover in rear."

The entrenching work done in the VIth Army Corps is stated to have been as follows:—

"The small portion of the prepared position on the Johannesburg consisted of a single line of trench about 4 ft. deep with the earth piled six inches high to the front. There was no head cover, and portions of the trench parapet were hollowed out and roofed in with timber baulks covered with earth. There were no support or reserve trenches, and the front line, though allowing of continuous communication throughout, was provided every 30 yards with traverses. The whole line was covered by a narrow belt of useful wire entanglement. The line ran along the foot of the Johannesburg over a series of low under-features. Once attacked it was quite impossible to send supports or reinforcements over the long bare slopes of the hill behind."

The absence of entrenching in the XIXth Army Corps appears to have attracted attention:—

"Since the *Kaiser* Manœuvres near Breslau two years ago, there seems to have been a retrogression in the matter of entrenchments. The German Army was then in the first flush of its interest in the Manchurian Campaign and had noted, and was acting on, the example of the Japanese. During the present visit, throughout the whole fortnight's manœuvres, on one occasion only was a serious bit of digging seen. The last day but one of the fighting some short lengths of fairly deep trench were sunk by the pioneers of a defending force in a potato field. These defending troops had been in occupation of their position for some three or four hours and were quite aware that they were about to be heavily engaged. Yet not a spade was stuck into the ground until the attackers had got to within 500 yards of the defensive line and until, in real war, the bullets would have been flying so thick about the ears of the working party as to make work well nigh impossible.

* * * * *

"The reaction against field entrenchments appears to be a reasoned one, certain commanders holding that they destroy initiative and hinder the counter attack."

Scouting.—Attention is drawn to the absence of scouting in a report on the XIXth Army Corps manœuvres:—

"Were it not that something of German company training had been previously seen, it would not have been possible to have guessed from any manœuvre experiences that the Saxons had any scouts at all. For although I happen to know that their men are very carefully trained in scouting, strange to say, during these manœuvres they used no scouts. Their reliance seemed to be placed entirely on cavalry patrols and certainly it was generally justified, although, as is shown under the heading of cavalry,* the methods of these patrols in the field would hardly stand the test of real war."

Range-finders.—Each battalion has a Hahn range-finder, which is reported on as follows:—

"The Hahn range-finder consists of a steel tube about 3 feet long weighing about eight to ten pounds. It is mounted on a

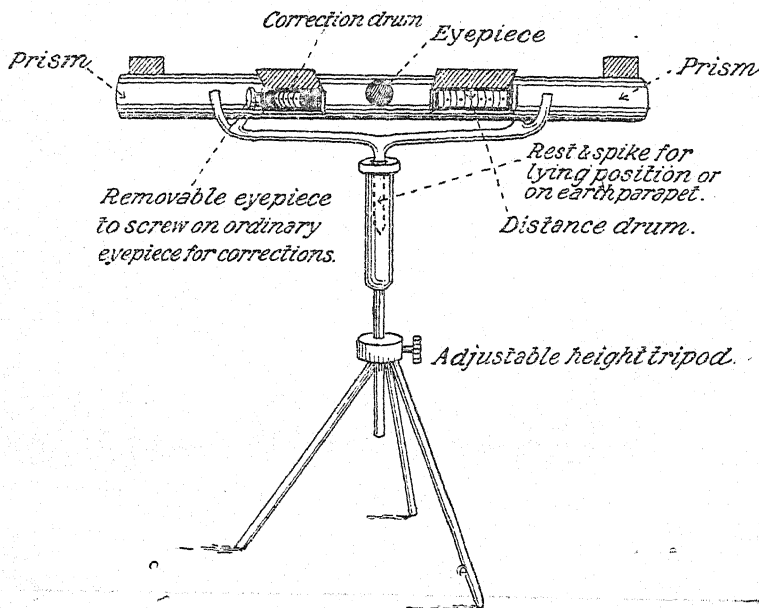
tripod, but can be taken off the tripod and stuck into the ground by a spike if used lying down. The tripod is used when standing, sitting and kneeling. The tube has an opening at each end with prisms. The eyepiece in the centre of the tube is a telescope with a magnifying power of 12. On the right of the eyepiece, under a metal flap which can be raised, is a drum reading from 500 to 5,000 metres. Looking through the eyepiece, the field is divided horizontally. The object to be arranged on is then observed through the lower half of the field, and the drum turned till the image on the upper and lower halves coincide, when the range is read on the drum.

"If there is any occasion to doubt the accuracy of the instrument there is a device by which the necessary correction can be made. Each instrument has a certain distance in metres (painted on the tube) at which it has been finally tested at the factory. The drum is set to this distance, say 690 metres, and another special eyepiece unscrewed from the left of the ordinary one and fixed on to the top of the latter. A small flap is then raised on the left of the eyepiece disclosing a second smaller drum. On looking through the eyepiece now, there appear two black perpendicular lines. If these lines are wide apart, it is apparent that there is an error. The small drum is now turned until it is only just possible to see light between the two black lines. The pointer on the drum now indicates the error in metres, plus or minus.

"One man carries the range-finder across his shoulder, and another the tripod. The Hahn is said to work up to 2,000 metres, with a maximum error of 10 metres. The majority of officers say that they much prefer to estimate distances up to 800 or 1,000 metres by eye, and that they endeavour to make each man estimate up to 800. Over 1,000 metres they gladly use the Hahn and find it a very practical instrument."

"The Hahn was seen in use in the defence, but never in the attack."

Memory Sketch of Hahn Range-Finder.



Cavalry.—The use of shock action by cavalry is only brought to light in a few of the reports. Several instances are quoted in a report on the IIIrd Army Corps manœuvres, and in each case the cavalry seem to have moved against their objective without apparently taking any measures for immediate security.

In the case of approaching a village it is stated :—

“The 3rd Uhlans were moving down the road in half-sections, apparently with no security patrols out. The leading squadron, when opposite the village, suddenly came under rifle fire. The squadron leader at once formed a line in the required direction and charged. This movement was very smartly done, a hurried line being formed on the officers. In spite of the fact that the enemy were on the far side of a good sized ditch, the umpires gave their decision in favour of the Uhlans. The pace of this sudden charge was fast.”

Again, on another occasion we read :—

“The Red brigade, supported by the fire of its two field guns, charged 8 guns and 7 squadrons of Blue; all the Blue guns and two squadrons were put out of action for half-an-hour. The Red brigadier, riding ahead of his brigade, had discovered the hostile guns which were in action against infantry. There were no combat patrols out, and what cavalry were with the guns was not known. The brigade was ordered up from the cover of pine woods to attack. The 2nd Dragoons were the first line in line of $\frac{1}{2}$ squadron columns, with the 3rd Uhlans in echelon on their left rear. The going was deep and heavy, and some of the squadrons had to jump a small drain. The whole distance, some 1,300 yards, was galloped by Red. No general line was kept, neither were intervals observed, and each squadron leader picked his own objective. The squadrons charging cavalry rode knee to knee, while those making the attack on the guns made a somewhat indifferent extension.

“The opposing squadrons rode right up to each other, while those attacking the guns went through them and were charged in turn by hostile cavalry. The order in the squadrons was good. The regimental standards were carried. Line was formed slowly.”

Another illustration :—

“The Blue cavalry was seen moving across the front of the Red cavalry brigade which was behind some woods, and was at once ordered to attack. Coming out into the open, a line of $\frac{1}{2}$ squadron columns was formed, and the 1,200 yards separating the opposing squadrons was crossed at a gallop. Line was formed at about 600 yards from the enemy, and the trumpet sounded the “Charge.” Immediately after this, infantry fire was opened on the Red squadrons from near a copse on their half-left front. The two left squadrons were able, owing to the slow pace, to change their direction and charged a squadron of hussars and some infantry. The remarks in the preceding instance apply equally to this attack. The going was again heavy. The order in the squadron ridden with was distinctly good. Again, no combat patrols were out, and hence the unlooked for appearance of the infantry. The manœuvre of the Blue cavalry looked suspiciously like a ruse.”

We find some interesting comments in a report on the XIXth Army Corps manœuvres as regards the use of shock action and the conflict of opinion existing in Saxony between the use of shock and dismounted fire action :—

“As regards the action of Saxon cavalry on the battlefield, their is just at present a strong conflict of opinion in the army. Senior cavalry officers, or higher commanders who have served in the cavalry,

are still strongly prejudiced against dismounted action, but almost all the artillery and infantry officers referred to, and a proportion also of the younger cavalry officers, seem inclined to doubt the wisdom of theories which practically force them once at least during every field day to charge artillery or infantry.

* * * * *

"A point tending to perpetuate shock tactics is the constant insistence by superior authority that every unit of every arm of a force engaged must, at all costs, participate in the fighting. The principle is sound in itself, but in its application it unquestionably tends to cause a multiplication of the suicidal charges. The cavalry of a column which has been waiting all day for an opportunity and has not yet found one, grows desperate as the time approaches for the "cease fire," and sooner than be accused of having taken no part in the fight makes a reckless charge."

"Having said so much, there is little doubt that, on the whole, dismounted action is tending to find more and more favour with the army generally. The *arme blanche* business has been carried to such a pitch that a reaction has fairly taken root even in the junior ranks of the cavalry itself.

* * * * *

"During the manœuvres some twenty cavalry charges must have been seen, most of them clearly ridiculous, against infantry or guns. This is not said in the spirit of a professed scoffer at the theory underlying those charges. The possibility, though not the probability, of bringing off successfully such feats of arms is admitted, but chances do not present themselves twice a day. And, even when they do present themselves, they demand the quality of quickness. In two or three out of the twenty charges the Saxon cavalry might have got home with effect had they fallen with unhesitating swiftness, direct upon their enemy. But in each case there was a fatal hitch; a change of direction; a pause, sufficient absolutely to ruin whatever chances of success there might otherwise have been. Charges of cavalry against cavalry are so quickly begun and ended that they are not as easy to hit off as charges against the less mobile arms."

Cavalry riding over Infantry.—We find an instance during the VIth Army Corps manœuvres where cavalry actually charged home at infantry and rode over them :—

"In the case of a cavalry charge no attempt to alter the sight was observed. The firing line opened a rapid fire with the sight (600 metres) they were using till the charging cavalry were within about 60 yards, when they suddenly ceased fire, lay down with rifles at their sides and heads well down, while the cavalry galloped clean over them, the horses jumping the prone men, not one of whom was touched."

Dismounted Fire Action.—It is quite evident that from experiences at the various army corps manœuvres this year, a great deal more attention is being devoted to dismounted fire action than heretofore. This is probably the outcome of the new Cavalry Drill Regulations issued this year, in which the importance of this class of fighting, combined with mounted action, is emphasized. At the same time the operations witnessed of this nature do not, in all cases, appear to have impressed the observers.

We read in a report on the Xth Army Corps manoeuvres that:—

“Although a good deal was heard of the extent to which dismounted action must be used in modern war, very unimportant dismounted work was seen at these manoeuvres, and opportunities for shock action seemed made arbitrarily rather than chosen with regard to tactical circumstances.

“Combination of fire and shock tactics was witnessed once only; when the Red and Blue cavalry brigades came into collision one day. On this occasion the whole of the Blue cavalry, which had worked round the Red flank and had secured a very advantageous position on some heights overlooking the left flank of the Red entrenched position, was surprised while dismounted in a hollow by a Red squadron which dismounted behind a crest and poured in a hot fire at a distance of about 300 yards.

“Instead of proceeding directly to the support of his dismounted squadron, the Red commander made a considerable circuit in order, as it appeared, to gain ground for the deployment of his whole brigade and his two batteries.

“Blue sent as many dismounted men as they could rapidly deploy against the Red squadron lining the crest. The remainder, about six squadrons mounted, and advanced to meet the Red brigade.

“Both sides met in squadron columns at little more than a trot. The guns could not come into action. No precautions for immediate security had been taken by Blue, and the information obtained by both sides, both of the enemy and of the ground, was next to nothing.”

After quoting one or two examples of the use of this form of fighting in the IIIrd Army Corps, a report goes on to say:—

“These were the only dismounted actions witnessed, and from them it would appear that, judging by former reports, there has been great improvement. The men are slow in getting on and off their horses. German cavalry officers say they recognize the importance of dismounted action, but it is doubtful whether it is quite understood.”

In a report on the XIth Army Corps manoeuvres we read that:—

“The German cavalry do not like getting off their horses and doing dismounted work. They own themselves that their men shoot badly. They were, however, often made to do dismounted work, and on the first day of the corps manoeuvres the cavalry brigade was sent ahead to gain some heights and to hold them until the infantry had come up.

“On the night of the 24th/25th September, the cavalry brigade protected the left flank of the position, holding all the crossings over the river Eder for two miles. A wagon was sent them with entrenching tools and they were ordered to dig themselves in, their horses being sent to a village close in rear. This was a novelty not appreciated by the cavalry.”

In the VIth Army Corps the dismounted fire action is thus commented on:—

“The cavalry appear to be in a transition stage between the old ideal of the mounted attack and the modern combination of mounted and dismounted action. Dismounted action was constantly employed but only in a hesitating manner, never more than one-half the force being dismounted at one time even when on the defensive, for the German Regulations favour this form of dismounting as more readily lending itself to movement of the led horses.

"When dismounted the tendency of the cavalry was to remain in one position too long without making full use of their mobility, with the result that when finally compelled to retire by the advance of the enemy's infantry, they had to do so under his fire at very effective ranges."

Scouting and Reconnaissance.—Attention is again drawn this year to the unrealistic manner in which the duties of scouting and reconnaissance are carried out. We gather as follows from a report on the IIIrd Army Corps manœuvres:—

"Scouting and reconnaissance were very intelligent and good, but the means by which the information was obtained is scarcely possible in war. Officers and men had an utter disregard of bullets, in spite of the fact that their knowledge of the art of taking advantage of cover is very good; but it is not put into practice if important information can more easily be obtained by disregarding precautions. Patrols were often seen taking notes in the open some 300 yards from hostile troops. They always moved away when fired at, but often to another similar position. This is due no doubt to the fact that prisoners are not taken, while umpires very rarely appear to use their prerogative of detaining such offenders. The men of a patrol invariably rode too close together."

"The intelligence and careful riding of orderlies and despatch riders was noticeable. There was no unnecessary galloping, and men rode on the soft side of the roads. The verbal reports were delivered intelligently. The practice of a despatch rider calling aloud the name of the officer he is seeking when passing through troops is an excellent one, but it leads to trouble when troops are in hiding in the vicinity of the enemy; two or three such incidents occurred, much to the annoyance of the cavalry brigadier."

In a report on the Xth Army Corps manœuvres it is stated:—

"Reconnaissance seemed thorough and good, but on several occasions information was unfairly come by. Umpires do not yet stop patrols approaching under impossible circumstances."

The general officer commanding the XIth Army Corps, on the other hand, appears to have adhered strictly to the letter of the Manœuvre Regulations:—

"Reconnaissance work is usually carried out by patrols of 1 officer and 6 men. Very good information was sent back by these patrols, but it was often obtained regardless of exposure. Whenever the general saw a patrol approaching hostile troops in a fashion impossible in war he immediately put them out of action. The attention of umpires and that of all officers was especially drawn to this point at a conference."

A report on the XIXth Army Corps manœuvres comments most unfavourably on the impossible methods employed by cavalry for acquiring information, although admitting that the information obtained was good:—

"In reconnaissance two points were particularly impressive, and it will be seen that these points tend to neutralise one another. The first is the extraordinary accuracy and completeness of the information brought back by patrols, even when they were only non-commissioned officers' patrols. Mistakes were very rare, although the reports often dealt with matters of the highest importance and went into details regarding the whole composition of a hostile advancing

or entrenching column. The second is the unreal manner in which these patrols are permitted to ride close up to the enemy to get this information. Cavalry patrols pay practically no attention to fire; the only thing that will keep them at a respectful distance is the presence on the ground of a superior force of their own arm.

"Whilst then giving the Saxon cavalry credit for a very high average of training and intelligence in bringing in news and in formulating it into reports, it is necessary to add that they take most unwarrantable liberties with infantry or artillery in making themselves acquainted with the facts."

Armament.—The new '98 carbine has apparently not yet been issued to the whole of the cavalry, but single squadrons are reported to have carried it in several army corps. Nor has the method of carriage yet been settled; but it is thought the experimental method of securing it to the man's back will not be adopted, and that the bucket on the off side of the saddle will be retained.

No decision has yet been arrived at as regards the substitution of the bayonet for the sabre.

The subject is referred to in a report on the IIIrd Army Corps manœuvres as follows:—

"Cavalry officers look forward to the advent of the new rifle. The question of a bayonet for cavalry is apparently still under consideration. Cavalry officers were of opinion that a bayonet in addition to a sword might be of use, but they had a strong objection to losing the sword for the bayonet, the sword being necessary in the event of the loss of the lance. An officer stated that it had been decided to issue a bayonet and withdraw the sword next year, but this was not confirmed. The present carbine has a sling, and men were seen with it slung on their backs when dismounted."

From a report on the Xth Army Corps manœuvres we gather:—

"The new carbine was carried by one squadron of the 13th Uhlans only. It was carried in a leather case on the back. There was no opportunity of inspecting it closely. The whole of the cavalry will be re-armed with it this winter. It is believed that the bayonet will replace the sword, although the majority of cavalry officers appear to be strongly against the bayonet. Many said that they would prefer to see lance and carbine alone."

Experimental methods of carrying the bayonet are commented on in a report on the VIth Army Corps manœuvres:—

"One squadron of Cuirassiers carried the new bayonet and no sword. Half the squadron rode with the bayonet on the left, half with it on the right side. Opinion favoured its carriage on the left side. It was understood that it was intended to withdraw the swords and issue bayonets for the new carbine to all cavalry on the 1st October, and that the bayonets for the purpose were already in Breslau.

* * * * *

"The bayonet is straight, 14 inches long with one cutting edge, the back being flat. All under-officers and one-tenth of the troopers are to have the back of the bayonet furnished with a saw edge."

Two reports, in which the quality of the steel lance is referred to, are interesting. The extracts read as follows:—

"(1) The steel tubular lances bend and often get out of shape. More than a dozen cases of the point being snapped off were seen.

“(2) * * * * It is easily broken and with difficulty repaired
 * * * No part of the lance is bright. It is clumsily carried
 and generally at the trail, and in reconnaissance and despatch riding
 with the point downwards. The points are very blunt; the result of
 always sticking them into the ground when dismounted. The
 weapon is roughly used; the men often using it as a lever to vault off
 their horses.”

Pontoon Equipment.—In paragraph 438 of the German Field Service Regulations of 1908 it is stated that the 2 four-horse pontoon wagons only form part of the equipment of cavalry régiments of a cavalry division. In the army corps manœuvres under discussion, in which no cavalry divisions took part, the reports were unanimous as regards all cavalry régiments being in possession of these wagons; it must therefore be assumed that the whole of the cavalry is now equipped with them. A recent Army Order has sanctioned 6-horse draught in place of 4-horse for these vehicles.

Artillery.—Little information is to be derived from the reports on the subject of artillery. In some army corps the batteries had 6 guns only, in others 2 wagons accompanied each battery.

Tactics.—Guns appear to have been usually massed and the methods of occupying positions appeared to vary in the several army corps. With the Guard Corps it is stated that positions were invariably chosen whence the batteries could come into action direct, and that the guns could occasionally be detected by the glint of the sun on the shields.

In the IIIrd Army Corps the procedure is described as follows:—

“It was noticeable that guns in action invariably used any available cover. They were especially fond of the edges of woods and copses and were cleverly concealed.* The half-concealed position in rear of a hill crest was often used, and rarely were guns seen in the open. Guns were always unlimbered under cover if possible and manhandled into position.”

In the Xth Army Corps the guns are described as having been massed on all occasions, except one, when a single battery was detached for the close support of an attack on a locality. The semi-concealed position was invariably favoured and only once was firing from a concealed position noticed.

The remarks about artillery tactics at the manœuvres of the XIth Army Corps may be quoted in full:—

“Brigades (*Abteilungen*) were seldom dispersed, and if the ground allowed it the whole regiment† was kept together. Indirect laying was seldom used, although at the camps it is much practised. No battery, laying indirect, was seen to switch its fire, and one battery, on a new and important target appearing, limbered up and came into action within 50 yards of its former position in order to fire direct. No moving targets were observed being engaged from concealed positions.

* This is taken to mean that the guns, although concealed, were firing direct.—(General Staff.)

† Two brigades.—(General Staff.)

"Half concealed positions were generally employed, but often the guns were quite in the open. Positions were given away by the flashes of the guns and by the dust thrown up, especially when the guns were firing in a ploughed field. There was no communication between the artillery and the infantry, and the support given to the latter was not sufficiently close to justify the artillery in dispensing with this communication. Observation posts, where the battery commander took up his position, were 200 to 400 yards in front of the batteries. He was connected to his battery by telephone, for which each battery has 2,000 metres of wire. A telephone line* was also run from the *Abteilung* commander to the battery commander. No signalling communication was observed.

"When laying indirect, the battery commander placed two aiming posts in front of the battery, one gun was aligned on these, and then parallel lines for each gun were set by means of the dial sight; an aiming post was then placed in rear of each gun and from this all further changes of direction were measured. No measurement of angles by instruments was observed.

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"The commander of a field artillery brigade said that the usual way of estimating the angle of switch was to stretch out his arm to the full extent and to extend his first two fingers in the shape of a 'V.' The space between the tips of the fingers represented an angle of 6 degrees. This, he said, was found to be more practical than using the knuckles, as the distance between the fingers when fully stretched was a constant quantity, whereas the fist might not always be clenched in the same degree.

* * * * *

"On the march, infantry companies are split up between brigades of artillery to act as escort; if the guns were not naturally covered by infantry, special escorts were detailed.

"The placing of teams and limbers, when the guns were in action, was bad, as they were nearly always sent to a place about 200 yards immediately in rear of the guns.

"Artillery officers did not seem to realize the power of the modern rifle. On one occasion, during an encounter battle, when one side was beaten back and a rearguard was being formed, it was observed that 2 brigades of artillery did not retire until the enemy's infantry were within 440 yards of them. They limbered up and withdrew at a walk, and every team must have been shot down."

Of special interest are the remarks on the tactics of artillery in a report on the XIXth Army Corps manœuvres:—

"Guns were almost always held together. In the smaller manœuvres if a commander desired to send artillery with his advanced guard he solved the question of splitting up his brigade by ordering the whole of it forward. The idea, sound in itself, of keeping units intact seems, in the case of artillery, to run some risk of being overdone. A battery commander cannot dislike detaching a section any more than a battalion or regimental commander dislikes detaching a company or a squadron, but he is more successful than his brethren in getting his own way with the column commander by appealing to the more technical aspects of the question.

"On every occasion during the 12 days' manœuvres, except two, the artillery began the action by firing from a concealed position or from a half concealed position. Most frequently the entirely concealed position was used.

* Four sets of telephone equipment are carried in a brigade. One for each battery and one for the brigade commander.—(General Staff.)

"A remark made in the 'Report on Foreign Manœuvres, 1908,' to the effect that the appliances used by the Germans for directing fire from a covered position are crude and clumsy, still holds good.

* * * * *

"During the final stage of the attack a proportion of the artillery usually advances into the infantry firing line and comes into action within three hundred or four hundred yards of the enemy's infantry. On one occasion the bulk of the divisional artillery moved up thus, at a trot, over a glacis of 1,200 yards swept by infantry and artillery fire. It was argued that this procedure was not so unpractical as it might seem at first sight, seeing that the enemy's infantry and artillery were fully occupied in repelling the close infantry assault.

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"Here the question must arise as to whether there is any good in accustoming cavalry or artillery or infantry to do impossible feats in peace on the theory that their offensive spirit will thereby be improved in war. The answer, it seems, should be in the negative. If by chance they were to act so in war there would, in nine cases out of ten, be an end of them altogether. If, on the other hand, they realise for the first time when bullets begin to fly that their peace tactics are inapplicable, may they not suffer some sense of discouragement?"

Entrenching.—Gun pits appear to have been always dug when there was time to do so. On some occasions the guns were gradually dug down into pits while firing. The entrenching was, however, in a great many instances merely executed as a matter of form, the parapets constructed being scarcely bullet proof.

A report on the XIth Army Corps manœuvres goes into the question in some detail:—

"Guns were entrenched in pits in accordance with the plan given on page 146, 'Report on Foreign Manœuvres 1906,' except that in only one pit was the excavation to hold the detachment seen. The earth thrown up in front was covered with grass or branches. There seemed to be no guiding principle as to when guns should be entrenched. Three sandbags about 4 feet long are carried on each gun. These are filled with earth and one is placed over each wheel to prevent the bullets coming between the wheel and the shield, the other being laid across the gun just in front of the shield.*

"In a prepared position on one occasion one *Abteilung* was dispersed among the infantry fire trenches, single guns being placed so as to flank them. The remainder of the artillery was entrenched in half concealed positions. The heavy howitzers alone fired indirect. There was no system of observation by night, the enemy's guns were located in the daytime and the guns of the defence were laid on these. All night a heavy fire was kept up on the attacking guns and it was admitted that very little effect was to be expected from this fire, but that it had been kept up because the army corps commander had criticised the lack of artillery fire by night at a previous conference. The guns in the fire trenches fired at the enemy's infantry when these were made visible by the searchlights. The heavy howitzers were behind a hill in trenches very similar to those used by the field artillery. To give them the line of fire by night they had a lantern in front of each gun."

* This procedure is also reported in the VIth Army Corps, and may be accepted as general.—(General Staff.)

In Saxony it appears that not much attention is given to entrenching guns at manœuvres:—

“Little or no use is made in Saxony of entrenchments for artillery. Probably the increasing use of the concealed position, wherein the necessity for artificial cover becomes less important, may be held partly responsible for the fact that a decent gun-pit was never seen, although the top of the plough was once feebly scratched by the detachments of a brigade of howitzers. So futile was the attempt that it could only have been intended to serve as a basis for a claim to be put in afterwards at the conference.”

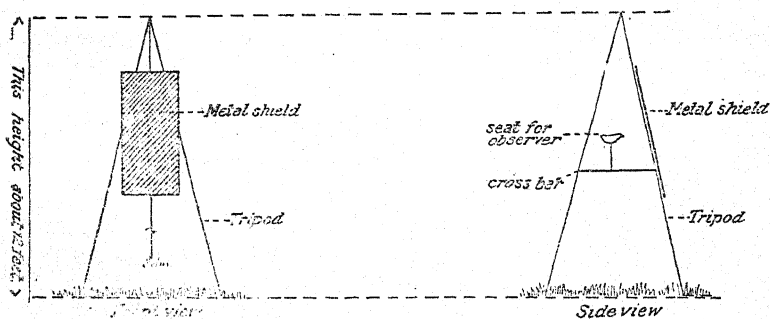
Firing at night.—In the VIth Army Corps artillery fire was apparently carried on at night. An extract from a report reads as follows:—

“In the attack on an entrenched position the artillery had been firing for an hour and a half by daylight and continued their fire at the same objective and same ranges through the night. It is extremely doubtful whether this night bombardment was of any use. The field artillery throughout the night were bombarding a single narrow trench $4\frac{1}{2}$ feet deep provided with splinter-proof shelters, while the heavy artillery (15 cm. howitzers) cannonaded a false position fitted with dummy wooden guns from which men let off occasional bombs. The whole would have been a great waste of ammunition in real war, with little or no effect.”

Observation telescopes.—The *Scherenfernrohr* (scissor-telescope) was in use with all batteries for observation purposes. It was usually used standing and cover was built for the observer with sandbags, each about a yard long, which are carried with the batteries for the purpose.

Observation ladders.—It is stated that observation ladders of a similar pattern to the one in use with the heavy artillery (see “Report on Foreign Manœuvres, 1907,” page 75) are shortly to be issued to the field artillery. In the XVIIth Army Corps an experimental observation ladder* described below, was in use with one field battery:—

Observation Ladder.



“It consisted of a tripod about 12 feet high. On the front of this was fixed a metal shield, about 4 feet from the ground, 5 feet long, and 2 feet broad (from memory).”

* Also referred to on page 83.

"This was painted a ground colour, and often tufts of grass, &c. were placed on top.

"Behind this shield sat an "observer" on a light bicycle saddle.

"This apparatus was placed on the rear slope of a hill; if on a gentle slope, as far back as possible."

Manœuvre Screens.—The usual manœuvre screens, red for infantry, white for cavalry, and red with a white triangle for machine guns, were in use, but with the IIIrd Army Corps it is stated that a yellow screen was added to denote that the guns were firing at artillery. The usual procedure is to raise no screen at all when guns are the target.

Engineers.—The pioneer companies were, as usual, generally employed as infantry, and two extracts from reports on the manœuvres of the Xth and XIth Army Corps respectively are sufficient to show the rôle played by them at army corps manœuvres :—

- "(1) During divisional manœuvres one company of the 10th Pioneers was allotted to each side. As a general rule they performed exactly the same duties as infantry, but were invariably allotted to the advanced guard. Whenever infantry entrenched, five or six pioneers were allotted to each section and supervised the infantry work. During corps manœuvres, each division had two companies of pioneers. Those attached to the 19th Division were distributed along the entrenched position and were also charged with the (imaginary) destruction of the bridges over the Ilmenau.

"(2) No bridges were constructed during the manœuvres. The Pioneer Battalion was used as a reserve to the attacking infantry, unless any other special duty was required of it. When time admitted of entrenchments being dug in defensive positions, the pioneers were used to help the infantry in siting, and deepening and improving the trenches. The searchlights were also worked by them."

In Saxony, with the XIXth Army Corps, some bridging operations are reported to have taken place, and these are described as follows :—

"No sort of warning had been given to the Red commander or to the pioneers that they were likely to be called upon to construct a bridge. The first they heard of it was in the orders received at 10 p.m. The bridge was made by half a pioneer company. It took 6½ hours in the making. The Mulde here is 65 yards wide, running between perpendicular banks about 14 feet high. It is an unfordable river, fairly swift, with nasty deep holes here and there, and also rocks in parts of the bed which greatly added to the difficulty. A cutting was made in the bank on each side, sloping rampwise down to the bridgehead which, even so, had still its roadway some 5 or 6 feet above the water level. The bridge was crossed by all arms.

"The work seemed solid and excellent. It was built on piles. All the materials, without any exception, had been procured locally in the spinning mill and village. The material was hired; that is to say, the original owner was allowed to take it back: wood, rope, rivets, wire, &c., when the military had done with it. It is reckoned that the cost of making a bridge on such terms is 60 per cent. of what the actual cost of buying the material and making the bridge outright would be. The total cost to the State of this bridge was 30l."

Medical Services.—Medical units are not represented at manœuvres, and the evacuation of sick is arranged for to certain specified localities detailed in the Manœuvre Instructions issued under army corps arrangements, and thence to the garrison hospitals of the troops concerned.

Sanitary arrangements in bivouac are always of a perfunctory nature.

The senior medical officer on each side, both at divisional and corps manœuvres, is responsible for drawing up on paper daily the necessary medical arrangements which would have to be made on service.

These arrangements are criticised at the conferences.

The following extracts from reports on the Xth and XIth Army Corps manœuvres show what is done with respect to medical services:—

“(1) Very little was seen of any sanitary arrangements. These seemed conspicuous in bivouac by their absence. The huts in the standing camp at Munster, temporarily occupied by the troops, were very dirty and insanitary looking from the British point of view. It is believed that there was a slight epidemic of typhoid fever during divisional manœuvres. One battery of field artillery had to be left behind in the camp at Munster owing to an outbreak, but was allowed to rejoin in a few days' time.

“The medical officers present were exercised rather as to their rôle during an engagement than in ensuring the general health of the troops. Each medical officer was supposed to draw up a scheme for the treatment and disposal of the wounded during each day's operations, and the seniors at the close of the conference were asked to read out or to explain the measures they would have taken. On one occasion the army corps commander severely criticised one of these schemes, saying that the dressing stations were impossibly far to the front, and that the medical measures would have hampered the actions of the troops.

“(2) On each day of the divisional manœuvres an officer was detailed to each force as senior medical officer, and he had to make out on paper all the administrative medical arrangements for the force he was with; these were handed to the senior medical officer of the division for his perusal.

“During corps manœuvres, the senior medical officer had to write these orders, which the corps commander always went through and criticised.

“Before the manœuvres began, all the water supply in the manœuvre area had been inspected by the assistant medical officer, and the places from which water could be taken were all marked.

“One ambulance only was seen, but not in use. From its size it appeared that two cases, lying down, would fill it. In the *Manöver Bestimmungen* (Manœuvre Instructions) arrangements were made to take in 52 sick, distributed among five villages.

“The sanitary arrangements in bivouac were practical non-existent, and no latrines were seen to be dug.

“As no casualties were simulated, the collection of the wounded was not practised.”

Telephones.—No progress is reported in this branch of transmission services.

As regards artillery telephones, we read in a report on the XIth Army Corps manœuvres as follows :—

“There were no telephones with infantry units. Each field artillery battery had a telephone with 2,000 metres of wire. There is also a telephone with each *Abteilung* (Brigade) and regimental staff.

“The instrument used in the field artillery seemed to work very well, and messages were accurately received. The line was carried on a reel in the same way as in the British service, and the instrument was carried on the back of the operator. It appeared very similar to the British pattern, connection having to be made with the earth.

“In the heavy howitzer batteries, the line was paid out by a man walking along with the reel on his back, and to reel it up again the drum was placed on the wagon and turned round by means of a handle.”

A few notes on the use of telephone detachments, as distinct units, are given in a report on the IIIrd Army Corps manœuvres, but they embody nothing new. The extract is given below :—

“The telephone was seen in use during the operations when the commanders were in communication with various stations. The equipment and wagon were as previously reported, the latter being a kind of double limber. The wire is coiled on small drums and uncoils as the wagon moves along. A man follows with a long pole by which the wire is lifted on to branches of trees. A drum was seen lifted out of the wagon and carried from it by one man to the cover of a wood, across three or four hundred yards of open ground, and a station was fixed up behind a haystack, where the general officer commanding stood. Stations are marked with a white T. on a red square fixed on a pole as before reported. A station seen consisted of two upright poles with a low cross pole, and attached to the latter were three telephone boxes. Three men were at work.”

Signalling.—The art of signalling in the German army is in its infancy, and there is little to be learnt from observations made in this connection. Flag signalling in the Morse code is authorized, and heliographs and acetylene lamps are used, but the last two merely to maintain communication between umpires as regards the tactical situation. The recent regulations only aspire to a rate of 60 words in half an hour.

Some notes from a report on the XIth Army Corps manœuvres are of interest on this subject :—

“The absence of all attempts was most noticeable, only twice were messages seen to be sent by flag. On both these occasions a yellow flag* was used, and the message was sent to the rear from a distance of 500 yards of the enemy's firing line, no attempt being made by the signaller to conceal himself from the enemy. These messages were sent particularly slowly, and when questioned as to why visual signalling was not more used, officers said that the length of service was all too short to teach men the rudiments of their profession, and that there was no time available to train them to become proficient signallers, and that unless they are proficient they are useless.

“All information was sent by means of orderly officers, of whom each regimental commander had one from each battalion; also by cyclists and mounted orderlies.

* Three flags, each 2 feet 6 inches square, are carried by a signalling detachment. These flags are white, dark blue, and yellow.—(General Staff.)

"The manner in which verbal reports were rendered was very good and showed signs of a good deal of peace training in this direction."

Machine Guns.—Apparently no machine-gun batteries (*Abteilungen*) were present at any of these manoeuvres except those of the Guard and XIXth Army Corps. Some infantry machine-gun companies were, however, seen. As has been previously stated, these companies are being gradually formed for every infantry regiment in the German service, and they are called the 13th Company of the regiment. Some 50 have already been formed, and there will eventually be 216 of them. No details of organization have as yet been officially published.

The following is an extract from a report on the manoeuvres of the Guard Corps in this connection :—

"The equipment of the machine-gun company appeared to be the same as that of the battery, except that it was lighter and drawn by two horses instead of four, the men being dismounted. It was understood that the two systems were being compared experimentally, the great advantage of the machine-gun company being its cheapness. No difference could be observed in their tactical handling. They were used principally to supplement the action of infantry. The guns were always brought into action on sledges, and no entrenchments were built."

In a report of the IIIrd Army Corps manoeuvres we read :—

"Machine guns were seen in use with infantry in the defence, when they were used in pairs in the firing line. They were placed under any available cover, and it was stated that they would also be put into the infantry trenches. Once a small sandbag emplacement was seen, cleverly placed under a low tree. The bags were potato sacks obtained from a neighbouring farm yard and were rendered non-conspicuous by leaves, &c. In a retirement from a position the maxims were seen to leave before the infantry. They were carried away by four men to ordinary carts.* The officer in charge stated that this was the great difference between the machine-gun company and the battery (*Abteilung*), in which the guns are mounted on gun carriages."

The following extract from a report on the manoeuvres of the Xth Army Corps is of interest :—

"No machine-gun *Abteilung* was present at the manoeuvres. The 77th Regiment and the 91st Regiment, of the 20th and 19th Divisions respectively, had each a machine-gun company consisting of six guns fixed on the usual sledges and mounted on a carriage with a limber drawn by two horses. There was one additional carriage and limber without a gun with the 91st Regiment.

"The complement appeared to be three officers and about 45 men. There was no opportunity of seeing the guns closely. The guns were always used in battery except on one day during divisional manoeuvres, when two guns were detached by one of the commanders with the cavalry. This use of the two guns was very adversely criticised by the divisional commander who said that their comparative lack of mobility was a most serious handicap to the cavalry, and that he hoped that such a mistake would not be repeated.

* There is no information on this subject.—(General Staff.)

"The machine guns very closely supported the infantry attack and were extremely quickly and ably handled. They were seen at a distance of about 800 yards, on one occasion, firing over the heads of the advancing infantry in the attack, and on another occasion, where the ground was very favourable, as close as 400 yards, supporting the final assault of the position.

"Wherever machine guns were so employed in covering the attack great weight was laid upon their effect by the umpires."

"The guns on their low sledges afford very little more target than infantry lying down, and much better use of cover was made by the machine guns than by the infantry.

"On one occasion two guns of a battery were put out of action by the enemy's field artillery at a range of about 2,000 yards.

"Another position was quickly selected and the guns run over the heather smartly and well.

"The guns fired a great deal, and there appeared to be no restriction as to ammunition, and, as far as could be ascertained, no guns jammed. The muzzle recoil attachment was noticed as the guns were passed in column of route, but could not be closely inspected."*

From a report on the manœuvres of the XIth Army Corps we gather as follows:—

"There was a company of machine guns with the 83rd Regiment, but there was no *Abteilung* with the division. In an attack at dawn the machine guns were used to give covering fire. In the defensive position the company was split up, so that they could enfilade the front.

"The company was once used as a battery to support the horse artillery, and was then placed on a flank about 300 yards in front of the guns. The general criticised this use of a company and said that it should be kept for its proper rôle, that is, with the infantry.

"It was generally used on the flank of an attack so as to bring oblique fire to bear on the enemy, and on one occasion good use of the company was made to support the holding attack.

* * * * *

"No rules are given to umpires as to the value of machine-gun fire; the general principle is that the value of the machine gun varies according to the position it has taken up and whether it offers a good target to the enemy's artillery. The usual value of a machine gun is estimated at 10 men, but if it is exceptionally well placed its value may be placed as high as 30 men."

The following are some comments on the use of machine guns in Saxony:—

"It is sufficient to say that machine guns in Germany seem to play a more leading part in manœuvres than in England. At conferences they were heard picturesquely described as 'dreadful,' 'terrible' weapons, and once, more slangily, as 'horrible things!' Umpires had to be warned not to attach too much weight to their action, but they persisted in attributing to them results often decisive.

"The machine-gun companies were worked much as our machine guns, and here it is considered that our organization, with two guns per battalion, is better than the company of machine guns as a brigade or divisional unit. But the machine-gun *Abteilung* (battery), well horsed and free to move like horse artillery, is to all intents and purposes a new arm, and often an extraordinarily effective arm.

* See pages 66 and 123, "Report on Foreign Manœuvres, 1908."—(General Staff.)

working as it does with cavalry, or, if there is no cavalry, being used wide on the flanks. Having four horses it can rapidly change position. The machine-gun company always accompanies the infantry; having only two horses it could not work independently or with mounted arms."

Billets, Bivouacs and Supply.—The arrangements as regards these services do not vary, and nothing special is brought to notice in the several reports.

Some notes on the subject in a report on the XIth Army Corps manœuvres may be quoted as being of special interest:—

"During the divisional manœuvres the troops were in billets three nights, and in bivouacs or close billets for two. All these billets had been pre-arranged, and although the opposing forces were not supposed to know where they would be each night, yet the fact of the localities for billeting having been all laid down in the Manœuvre Regulations, and the necessary preparations having been made for the supplies, gave the troops a good hint as to the direction in which the operations must eventually lead them.

"Nothing impressed one so much as the billeting arrangements. Each infantry battalion sent on ahead one officer, and each company two non-commissioned officers. They had to be in the *Bürgermeister's* (Mayor) office at 10 a.m. on the day the billets were required. When the necessary arrangements had been completed they went out to meet their battalion as it came in, and the celerity with which all the men of the company were told off to their respective billets was quite remarkable.

"The inhabitants were quite pleased to have the soldiers billeted on them, and complaints were occasionally received from those who had no soldiers allotted to them.

"From personal experience, nothing could have been more civil than the attention received. Whatever time of night a start had to be made, coffee and rolls could always be obtained, and apologies were tendered for the poorness of the hospitality the hosts were able to offer.

"When possible, soldiers are not billeted on the poorer inhabitants of a village, as it is realized that the amount allowed (1s. 2d. per man) does not cover the cost. The *Bürgermeister's* list of billets is computed not with reference to the accommodation, but to the ability of the owner to supply food."

In a report on the VIth Army Corps manœuvres the system of billeting, bivouac and supply is so well described that, although there is no departure from the rules laid down for those services, the extracts are given in full for the purpose of general information:—

"*Billets and Bivouacs.*—The civil authorities in Germany keep up lists showing exactly the numbers of men and horses which can be billeted on each house in "ordinary" and "close" billets. The military authorities are not allowed to exceed the numbers so fixed. When manœuvres in any district are decided on, this information is placed on a skeleton map. Working on this, the arrangements for billeting or bivouacking are worked out by the general staff officer and the intendant of the division. This information is tabulated in a form* and is kept secret to avoid troops knowing where they are to halt during the continuous portions of the manœuvres. Eight

* See page 128.

days before the manoeuvres, and if possible earlier, the civil authorities are informed of the number of horses and men to be billeted on each village, but the units are not stated.

"Billeting staffs are arranged for from all staffs and units of the forces, are under the orders of the intendant, and continue to act without change throughout the manoeuvres. They receive their orders daily from the intendant after the troops are on the move, the more distant ones in writing by orderly or through the telephone. This is done with a view to keeping the arrangements secret till the close of the manoeuvres, but in practice the locality of the billets generally leaks out and is known by mid-day.

"On arrival at the village the billeting party receives from the village officials the arranged detail, by houses, of the numbers to be billeted, and then marks these in chalk on the house gate with the unit number which is to occupy them. They make themselves acquainted with the water supply and, if not already marked by the civil authorities, mark the doubtful sources 'not to be used,' 'for cooking only,' &c.

"If more than one unit is billeted in a single village the senior of the billeting party (*Quartier-macher*) is responsible for the preliminary division of the village into the number of sections corresponding to the number of units to be billeted.

"Billets are paid for at the rate of 1 penny per horse, 1½ pence per man, 3 pence per non-commissioned officer, and one shilling per officer.*

"The food given to the billeted soldier is much better than can be purchased for the money given as allowance for food, which is :—

	Officers.	Men.	
		Bread supplied.	Ration Bread issued.
	<i>s. d.</i>	<i>s. d.</i>	<i>s. d.</i>
Full day - - -	2 6	1 2	1 0½
Morning march only -	0 6	0 3	0 2½
Midday dinner only -	1 2½	0 7½	0 6½
Supper only - - -	0 9	0 6	0 5

* * * * *

"In every village, as the troops passed through, the people stood at their doors with buckets and jugs of drinking water into which the men dipped their drinking tins on the move.

* * * * *

"Cavalry were invariably billeted; they never bivouacked. Shelter for the horses was easily provided in the great barns and cattle sheds with which the country abounds. This custom would account largely for the excellent condition in which the horses remained throughout the manoeuvres, especially as regards the total absence of coughs and such ailments.

* This is the rate without food; it is 1s. 2d. per man when the landlord finds the food.—(General Staff.)

"When bivouacked, all ranks receive straw and firewood at the following scales:—

Straw.

Mounted Officer	-	37 kg. (79·4 lbs.).
Dismounted Officer	-	9 kg. (19·8 „).
Mounted Man	-	5 kg. (11 „).
Foot soldier	-	4½ kg. (9·9 „).

Firewood.

Cavalry Regiment	-	72½ cub. metres (16·3 cub. yards).
Infantry „	-	24¾ „ „ (32·3 „ „).
Battery	-	2½ „ „ (3·3 „ „).

"Sanitary arrangements or latrines did not exist. The men appeared to make use of any convenient bit of ground. Fortunately bivouac grounds were not occupied for more than one night and the steam plough of the landowner soon restored sanitation.

"Before leaving a bivouac all the straw must be collected and tied into bundles, and placed in heaps with all unused firewood, preserved meat and vegetable tins. A battalion paymaster is then told off to sell these by auction to the people of the neighbouring villages, and is held responsible that the hour of sale is made known to the inhabitants.

"When quartered in places of more than 3,000 inhabitants troops usually received the money allowance to purchase food, in place of receiving it from landlords or supply depôts.

"*Supply.*—When working out the billeting and bivouacking arrangements the intendant and general staff officer also arrange the supply to troops in bivouac and tabulate the results in a form.*

"For these manœuvres the regular garrison magazines at Breslau, Brieg and Ohlau were open for supply, but in addition, the intendance formed and specially stocked manœuvre magazines at Trebnitz, Schonborn, and Wansen. At the latter, which was the principal place of supply for several days, a field bakery capable of turning out something over 20,000 bread rations daily was established. The food to be issued from these magazines was laid down† and consisted per man of:—

Preserved meat	-	200 grammes.‡	Once during the manœuvres
„ vegetables	100	„	fresh meat 250 grammes,
Potatoes	-	500	„ rice 125 grammes, was
Salt	-	25	„ issued in place of the
Coffee	-	15	„ preserved meat and vege-
Bread	-	750	„ tables, the other articles
Or in place of bread	400	„	remaining the same.
biscuit.			

"Civilians accompanying the troops, such as officers' private servants, &c., could obtain these rations on payment, 1¼d. for bread, and 6d. for the remainder.

"The issues were made on regular indents, which had to be submitted the day before to allow for checking. Issues were made to battalions, squadrons, and batteries. Subdivisions to companies was made by the paymaster. To facilitate this a large number of spare scales and weights were provided at the magazines.

* See pag. 127.

† This is the ordinary manœuvre or field service scale.—(General Staff.)

‡ 1 gramme = ·035 ounce avoirdupois.

"Preserved rations found to be bad had to be returned to the Supply Magazine officer with a written complaint.

"Cooked rations for 6 battalions were brought from Breslau on the last day but one for issue to the advanced guard troops. This consisted of a stew of mutton and rice in huge screw-topped cauldrons, which were packed hot in great wooden covered tubs, the air space between the cauldron and the wooden tub being packed with straw. This kept the food absolutely hot till issued. The tubs were carried on the ordinary carts of the country."

Transport.—The arrangements for transport were as usual, but for general information a good and brief account of the arrangements in an extract from a report on the VIth Army Corps manœuvres is given here:—

"First line transport in possession of the troops in peace time accompanied the units,* all other transport was hired. These arrangements were worked out beforehand and entered in a form.† Having arrived at the number of 2-horse and 1-horse vehicles required, the intendants made arrangements to hire on contract in Breslau, as far as possible, the minimum necessary for the whole manœuvres. Transport for a day or so required in the country was obtained by requisitions which were issued nearly a month beforehand to enable the local people to make arrangements. In one case a large landowner, rather than take his trained plough horses and peasants from their farm work for the one day they were requisitioned for, hired substitutes in Breslau for three days, one to come, one to work, and one to return, at 15s. a day per cart.

"Each hired waggon carried a board detailing what it was.

11th Infantry Division,
Baggage Column.
Grenadier Regt. 10. Wagon No. 1.
Regimental Staff.

"The hired driver wore a similarly lettered white band on his left arm.

"To guide the baggage column—

"Each company detailed:—	1 under-officer and 1 man,
"Each battalion:—	1 senior under-officer,
"Each regiment:—	1 company sergeant-major,

while the train found 2 officers, 4 under-officers, 6 men for each force to supervise.

"Daily orders appointed a place of assembly for the vehicles of the column and the order of march when formed, and also appointed a place up to which the column was to move.

"When this point was reached a report was sent to the director of manœuvres, and further orders were issued by him according to the situation. These orders generally gave another point to which the closed-up column moved and then halted, and from which it received orders to disband to the units.

"The train supervising officers had to send a report daily to the divisional general staff officer showing the time at which the various units received their baggage.

"Baggage generally reached the ground as soon as the troops.

* One ladder sided vehicle per unit.—(General Staff.)

† See page 127.

Forms showing Arrangements for Billeting, Supply, and Transport for 2 Companies 6th Pioneer Battalion with 11th Infantry Division from the 12th to 20th September.

I.—Billeting.

Detail.	12th.	13th.	14th.	15th.	16th.	17th.	18th.	19th.	20th.
Staff - 1st Company	Ottwitz Breslau, 110 in barracks, rest in town.	Ottwitz Bivouac	Birkertscham Bivouac	Birkertscham Runzen, $\frac{3}{4}$; Sitzmandorf, $\frac{2}{3}$.	Birkertscham Runzen, $\frac{3}{4}$; Sitzmandorf, $\frac{2}{3}$; Gaulau	Comradswaldau Bivouac	Pollwitz Runzen	Pollwitz Runzen	Bivouac.
2nd Company	Kreitsch, $\frac{3}{4}$ Waldchen, $\frac{1}{4}$.	Bivouac	Bivouac	Gaulau	Gaulau	Bivouac	Halbendorf	Halbendorf	

II.—Supply.

Staff - 1st Company	In billet Money issue, self purchase. Horses from Breslau Magazine.	Billet Schoborn Supply Magazine.	Billet Ohlau Magazine.	Billet Billet	Billet Billet	Billet Ohlau Magazine.	Billet Billet	Billet Billet	Walsen Magazine.
2nd Company	In billet	Wansen Magazine.	Wansen Magazine.	Billet	Billet	Wansen Magazine.	Billet	Billet	

III.—Supply of Hired Transport.

Staff - 1st Company	—	—	—	—	—	2-horsed wagon, 1. 1-horsed, 1.	—	—	2-horsed wagons, 2.
2nd Company	—	—	2-horsed wagon, 1. 2-horsed wagon, 1.	—	—	2-horsed, 1.	—	—	

Government. The German Government is stated to have purchased them as an experiment. On being tested, they proved not to be bullet-proof and were considered unsatisfactory on account of their weight. No details are reported.

Horses:—The following extract from a report on the manœuvres of the VIth Army Corps gives some information about horses and veterinary arrangements.

The horses of the cavalry were in splendid condition, despite long days and heavy work in the mud. No attempts were seen to give them a feed, and none appeared to be carried. Horses were occasionally seen being watered in the day. The horses of the staff were regularly watered once, about midday.

"A horse came down and cut his knees very slightly. He was immediately taken away by a veterinary assistant to the nearest village; his wounds washed and antiseptic lotions put on (apparently liquid iodoform) and then sent back to the ranks.

"Veterinary Field Hospitals were formed for the manœuvres at Ohlau and at Canth, but it was stated that only two cases of accidental injury had been admitted to each."

As regards Saxony we read that:—

"(1) The horses continue to show improvement. They all came from Prussia. When the officers can afford it they buy English or Irish horses. They are prepared to give 100%. They say they are infinitely more tractable and better mannered than the Hungarian horses bought by the poorer officers.

"(2) The Saxons are very proud of their field artillery horses. They show a good deal of quality, but they are inclined to be leggy and long in the back. They are wanting in bone and substance."

Popularity of the Army and Socialistic Influence.

—It is well known that in Germany the popularity of the army is such that during the manœuvre period, when the troops are brought into direct contact with the civilian population owing to the billeting system, everything possible is done to make things pleasant for officers and men. Again, it has been generally supposed that socialism has an undermining effect on the discipline of the German troops, but this is not really the case, and from the following extract from a report on the XIXth Army Corps manœuvres we get an interesting light thrown on both the above questions:—

"As to the popularity of the Saxon army with the Saxon people, this Report would be incomplete indeed if no reference were made to so striking a feature of the manœuvres. Whenever the country folk encounter a soldier they beam all over and bid him thrice welcome. On the 14th September, when the Reds marched down through the little town of Hartmansdorf, the windows were crowded with factory girls. Some of the men waved their hands gaily to them, when instantly they came pouring out into the street, laughing and leaping and passing their arms through those of the men in the ranks. The officers had great trouble in persuading them to keep back, so as not to impede the manœuvres. Everywhere it was the same. Women rushing out of houses with beer, or milk, or coffee, or if they had not any of these good things, at any rate with drinking water. East of the Elbe such demonstrations might be considered natural enough, but it must be remembered that the south Saxon manufacturing

towns form, by many degrees, the most socialistic section, even of socialistic Germany. It was understood that in Chemnitz at least three out of four of the people were social democrats.

"On this subject interesting conversations were held with several officers, and it must be confessed their views were surprising, for they asserted that socialists made the best soldiers:—

"(1) They were usually the more intelligent of their class.

"(2) They had already been broken into a severe party discipline, involving subscriptions, attendance at meetings, proselytising, &c.

"(3) They were different from the French socialists or from most of the English socialists, inasmuch as they were Germans first, politicians afterwards. The organizations to which they belonged told them to go through the mill and to learn to bear arms for the effective defence of the Fatherland, and it was carefully pointed out to them that with such an end in view they must behave as good soldiers whilst they were in the ranks.

"As illustrative of these points, a captain of artillery stated that during his period in command of a reserve battery taken out for training during 1908, he had the misfortune to have under him the most famous leader of the Saxon socialists. He undertook the training with a heavy heart, fearing evil would come of it. On the contrary, the socialist turned out to be one of the mainstays of the battery. Twice he made a small attempt to assert himself; once to get special leave on the ordinary sort of plea of the sickness of his mother, and the other time to get off some military duty on the plea of physical inability. Each time, being challenged by the captain as to the real necessity for such exemption and put on his honour, he played the game and did not press his demand. On the other hand, he had a great influence with the men, and that influence was entirely exerted in making them do their duty properly."

HOLLAND.

The manœuvres took place in the neighbourhood of Arnhem and Amersfoort between the 15th and 21st of September.

It had been intended to hold grand manœuvres with two divisions, but owing to the outbreak of cholera, it was thought advisable to organize manœuvres for each division separately.

STRENGTH AND COMPOSITION OF THE TWO DIVISIONS.

Each division was composed of two brigades,* each brigade being composed of 2 regiments of infantry of 3 or 4 battalions each, 2 squadrons of cavalry and 2 or 3 batteries of field artillery, the approximate strengths per division being :—

Infantry	-	-	-	10,000
Cavalry	-	-	-	500
Artillery (field)	-	-	-	20 guns
Horse artillery	-	-	-	12 guns
				(attached to 2nd Division).
Cyclists	-	-	-	160 men
				(two companies).
Engineers	-	-	-	130 men
				(one company).
Telegraphists	-	-	-	100 men
				(one company).

Each division was commanded by a major-general with a staff of eight general staff officers.

THE COUNTRY.

The country in which the two divisions operated was in the vicinity of Arnhem and Amersfoort, and was composed of heather downs interspersed with sandy tracts, and heights rising to about 200 feet; the country afforded numerous positions and also cover for all arms; small woods and copses were dotted about, but many of them had to be placed out of bounds owing to the shooting rights of the owners. The manœuvre area was very similar to that of the Fox Hills at Aldershot and was well adapted to the co-operation of all arms.

NATURE OF THE OPERATIONS.

Although the forces employed were numerically small, the tactical schemes were framed with a view to affording generals of brigades and commanders of units full scope for initiative.

* These brigades were formed for the manœuvres only. The Dutch establishments do not include any formation between the regiment and the division.—(General Staff.)

A noticeable feature of the manœuvres was the serious way in which the staffs and regimental officers performed their duties, and the willingness with which all the exercises were carried out on the part of the men.

The schemes generally involved the attack of a position occupied by a skeleton force.

METHOD OF CONDUCTING THE MANŒUVRES.

Umpiring.—Two senior and about 4 junior officers were told off to each brigade; whenever a unit came under fire an umpire galloped to it and informed it of the fact, upon which it hoisted a yellow flag. No casualties were fallen out, the yellow flag being merely regarded as an acknowledgment of the fact that a unit was under fire and had suffered losses.

The targets fired on by artillery were indicated as follows:—

Infantry targets: two shots in quick succession repeated at intervals, a red and white disc being hoisted somewhere near the guns in action.

Cavalry targets: two shots, as for infantry, but the disc hoisted was a white one.

Artillery targets: single shots and a red disc.

REMARKS.

The Three Arms combined.—The co-operation between the three arms was all that could be desired, the support of the artillery during infantry attacks being especially noticeable, though the batteries were slow in getting their guns into position.

It appeared to be the custom to retain one half of the force as a reserve at the commencement of the engagement.

The attack was generally commenced on a broad front, with a few troops well extended, the front line being fed by the supporting troops as the attack approached its objective.

Infantry.—Infantry was usually widely extended on coming within view of the enemy. After an attack was once started the men were never closed, even when concealed from view.

Fire was opened at ranges of 1,000 yards and even at longer ranges both in the attack and defence, though in the latter case fire was occasionally withheld when the defenders had occupied a false front or an advanced position.

Fire was always independent, increasing in intensity as the opposing forces neared each other.

All advances were made by rushes, generally of sections, but frequently also of companies, half-companies, groups, threes or even single men.

Trenches were never constructed in the attack. In the defence they were invariably made and utilized.

Fire discipline was good and was well controlled; each section commander carried a small trumpet (similar to that employed by signalmen on foreign railways); company commanders and other senior officers carried whistles.

Cavalry.—Owing to the nature of the country, with its numerous dykes and canals, the Dutch cavalry has been accustomed to fight mainly on foot. Lately an endeavour has been made to train them to rely on mounted action to a greater extent. During this year's manœuvres the result was seen in improved scouting; a few charges were also carried out.

Artillery.—The artillery was rather slow in coming into action, but once a position was occupied the ranging and fire control appeared well carried out.

Both in attack and defence, the co-operation of the artillery with the other arms was all that could be desired.

The batteries did not entrench, but relied on the protection afforded by the concealed positions which they invariably made use of.

No observation ladders were employed, but an observer with a Zeiss telescope and range-finder was sent forward to a position affording a good view, where he was in direct telephonic communication with the artillery commander.

An experimental battery of 4 Krupp 12-cm. (4.7-inch) howitzers was employed. It seems certain that howitzers will shortly be added to the field artillery for the purpose of searching out troops concealed behind dykes or among sand dunes.

Machine-Guns.—The Schwarzlose machine-guns are still under experiment; one of these guns was attached to a squadron of cavalry during the manœuvres, and others were allotted to infantry battalions.

The cavalry Schwarzlose machine-gun was carried on a packsaddle on the off side of the horse, the small tripod being carried on the near side, and one box of ammunition in the centre; four other horses carried the ammunition; these horses were each led by a mounted man; the gun and ammunition were thus transported by five horses.

The infantry machine-guns were formed, temporarily, into batteries of six guns, organized in sections of two guns. The gun was mounted on a small carriage having two small trails, each of which was provided with a spade; this carriage can be lifted by one man. The gun and carriage were transported on a gun carriage with limber similar to, but lighter than that of a field gun. The transporting gun carriage carried 15,000 rounds of ammunition; it was drawn by four horses and appeared rather cumbersome; it would probably have been better to employ pack transport for the infantry machine-guns, as was done for those with the cavalry.

Cyclists.—Two companies of cyclists, each numbering 80 men,* were allotted one to each division. They were used chiefly with the cavalry but also as escorts for the artillery. Their principal duties were scouting and reconnaissance.

Horses.—The horses of the mounted branches appeared good and well cared for; the riding horses are Irish, the draught horses country-bred. The two horse artillery batteries were completely horsed with Irish horses. The men appeared to ride well.

* The normal peace and war establishment of a company is 149 cyclists.
—(General Staff.)

ITALY.

The Italian Grand Manœuvres took place this year at the southern end of the Lake of Garda, within the quadrilateral indicated by the towns of Brescia, Piacenza, Mantua and Verona. Their duration was from August 26th to September 2nd inclusive.

STRENGTH AND COMPOSITION OF THE OPPOSING FORCES.

Red Force.

Commander.—Lt.-General Ponza di San Martino.

Troops.—Vth Army Corps and one Cavalry Division.

Total.—27 battalions of infantry, 26 squadrons of cavalry, 1 battalion of cyclists, 7 batteries of Krupp Q.F. guns, 11 batteries of bronze guns, 7 infantry and 4 cavalry machine gun sections, 2 companies of sappers, 1 telegraph company, 1 pontoon company, 3 ammunition columns, 1 corps artillery park, 1 cavalry division artillery park, 1 automobile park, 1 section of supply motor wagons.

Strength (approx.).—20,720 officers and men, with 6,190 horses, 96 guns, 22 machine guns.

Blue Force.

Commander.—Lt.-General Incisa di Camerana.

Troops.—An army corps, specially formed, consisting of the VIIth Division, one mixed division and one division of cavalry, 1 battalion of cyclists, 5 batteries of Krupp Q.F. guns, 13 batteries of steel guns, 5 infantry and 4 cavalry machine gun sections, fortress artillery (strength not known), 1 company of sappers, 1 pontoon company, 1 telegraph company, 3 ammunition columns, 1 corps artillery park, 1 cavalry division artillery park, 1 balloon park, 2 sections wireless telegraphy, 1 automobile park, 1 section motor supply wagons.

Strength (approx.).—23,280 officers and men, with 6,525 horses, 96 guns, 18 machine guns.

Directing and Umpire Staffs.—The Directing Staff consisted of the Chief of the General Staff, Lieutenant-General Pollio, 48 staff and attached officers. The Umpire Staff consisted of 24 generals, 28 field officers, and 35 captains and lieutenants. At the disposal of the Directing and Umpire Staffs were 29 motor cars, 26 cyclists, and 3 motor lorries.

COUNTRY.

The principal topographical features within the area of operations are the Lake of Garda with the unfordable river Mincio, 40 yards wide, flowing out of its southern end, the River Oglio (held to be unfordable), the Chiese river, 20 yards wide (a fordable affluent of the Oglio), and the peculiar series of ridges, 5 or 6 in number, round the south end of the Lake of Garda. These ridges are about 100 to 150 feet high and are cut through transversely, so that they form a most confusing and, apparently, irregular collection of elevations, often with steep slopes and some cultivation. There are many artillery positions in this part, but little ground is to be found suitable for the action of masses of cavalry, except the Campo di Medole. Between the foot-hills and the Po the country is an absolutely flat plain, fairly open to the north of the Brescia and Mantua road, but composed of a network of canals and roads south of that road, with much cultivation. All this latter part is most difficult country for cavalry to act in, as it is impossible to see more than 100 yards in any direction except down roads, which sometimes resemble tunnels in the trees. The irrigation canals are usually 4 to 8 feet deep and 10 to 20 feet broad.

The historic battlefields of Lenato, Castiglione, Solferino, San Martino and Custoza all lay within the manœuvre area—among the hills referred to above.

The villages are scattered groups of solidly-built houses—mostly two-storied. The small towns are compactly built, with a broad main street or two, a "*piazza*" and narrow side streets, the houses being usually from 3 to 4 stories high.

The weather was cool, with a little rain on four days. There was only one hot day, and at no time was there any dust to speak of.

NATURE OF THE OPERATIONS.

The general idea was that a Blue Army was resisting the advance of a Red Army moving down into the plains of Lombardy from the mountains on the Italian frontier north of the line Brescia-Verona-Vicenza.

The special idea of the Red troops was that, having forced their way down the valleys north of Verona, they should hold the line of the Mincio above Goito, take possession of Peschiera and reconnoitre towards the line Brescia-Piacenza.

The special idea for the Blue force was that, an opportunity presenting itself for operations against the Lines of Communications of the Red main army (imaginary), a specially formed army corps (not witnessed by the foreign officers) should be assembled by road and rail between Brescia and Piacenza, and should advance toward the line of the Mincio above Goito to drive the enemy from the hilly country south of the Lake of Garda, and should act with energy against the

enemy's Lines of Communications in the Val Lagarina, north of Verona.

Method of Conducting the Manœuvres.—His Majesty, the King of Italy, who took up his quarters in the Gonzaga Villa at Volta Mantovana, received reports each evening from the Director of Manœuvres, but did not personally intervene in the operations in any way.

The operations were the first to be held under the direction of General Pollio, the new Chief of the General Staff, and were fairly realistic. The commanders were not hampered by any considerations as to supplies or billeting, and were left complete freedom as to their movements. Practically the only interference on the part of the Director consisted in telegrams sent at the beginning to both commanders informing them of general reinforcements, &c.

Hostilities continued day and night from noon till 6 p.m., except for a fixed daily halt, which commenced without any signal or notification. In addition a general halt was ordered from noon on August 29th till 6 p.m. on August 30th. The daily halt was obligatory on all troops except the supply services and orderlies.

The transport of troops by rail, after the first concentration, could only take place under orders of the Director of Manœuvres.

Casualties.—No method was employed for indicating losses in action, and casualties were never simulated.

No prisoners were allowed to be taken during manœuvres. It was forbidden to interfere with the telephone or telegraph lines, to make use of stratagems, employ spies, &c., &c. When patrols were discovered, there were required to get out of sight of the enemy as quickly as possible. If fired at, they could be put out of action by the senior officer present.

Compensation Commission.—No manœuvre rights were acquired.

The commissions for damages and compensation were placed under the orders of the Commanding Engineer at Verona. Proclamations were posted up in the villages stating the latest date by which claims for compensation must be submitted.

The organization of the commissions was as follows :—

A central commission was formed at Verona consisting of the commanding engineer and two senior officers. In addition several field commissions were formed consisting each of an officer, one representative of the Commune, and a computer of the engineers. The field commissions examined the claims immediately on the spot and, if an agreement could be come to, paid the claims at once. If not the claim would be referred to the central commission and then might be carried into the law courts.

It is not known on what scale payments were made, but it may be mentioned that the compensation paid after the manœuvres of 1907—of about the same extent and duration in country not dissimilar—amounted to 400,000 francs, or about 16,000*l*.

The Press.—A General Staff Officer was appointed to look after the representatives of the press, and for their convenience a special motor omnibus was provided. The correspondents were supplied with maps and information in the same manner as the foreign officers. Officers and men taking part in the manœuvres were not permitted to furnish information to the press or to act as newspaper correspondents.

Maps.—The manœuvre map was an Ordnance map on the scale of 1 to 100,000. Most of the officers appeared to have maps, but none of the rank and file.

Diaries.—Diaries were kept by each unit, containing a brief summary of the operations. These had to contain sketches showing the position of the troops every day at 6 p.m.

Manœuvre Reports.—At the end of the manœuvres the commanders of each army corps were required to compile and transmit to the Director a short report of the manœuvres, together with any recommendations which they might consider it advisable to make. Reports were also required to be furnished to the Director by the Umpire in Chief and by the officers at the disposal of the umpire direction for the various supply services.

At the end of the Grand Manœuvres each army corps commander was required to furnish to the Director a personal report on all the general officers acting under his orders during manœuvres. The Umpire in Chief was required similarly to furnish reports on all the officers on the umpire staff.

Conferences.—The only conference (to which the foreign officers were not invited) took place in the presence of His Majesty the King at Carlango on September 4th, when the Director made his criticism on the operations.

Distinguishing Marks.—The Red troops were distinguished by a white cap-band.

Umpires.—The staff of the Umpire-in-Chief (a Lieut.-General) consisted of the Commandant of the Staff College and eleven other officers.

The Umpire Staff with each of the opposing armies consisted of a Lieutenant-General and 39 other officers (eleven of them being General Officers).

Umpires were told off permanently to the larger units, which was a new departure; on the whole the system worked better than that employed at former manœuvres.

The Umpire-in-Chief and his staff were kept sufficiently supplied with information to compile during the general halt

a summary not only of the day's operations, but also of the intentions of the commanders for the future operations; this summary was transmitted to the Director to form a basis for any directive decision.

REMARKS.

Staff.—The staff shows improvement every year. A good many points are, however, still open to criticism. The orders of the higher units go into considerable detail, resulting in a want of decentralization; a junior transport officer, for instance, was observed to be in possession of and acting upon army corps orders. Again, staff officers are kept working at such high pressure by day and by night that they would speedily break down if manœuvres lasted longer. An instance of this was seen in one of the larger units, in which the staff officers stated that they had only had 3 hours sleep in 3 nights.

The movements of the troops were simple, so that the staff work involved no complicated movements. On one occasion, however, a regiment of "Bersaglieri" crossed the line of march of the 10th Division.

Strategical Cavalry.—Neither of the commanders made any strategical use of their cavalry divisions. Instead of endeavouring to locate the main bodies of the opposing armies, the two cavalry divisions appeared to move round each other with the Campo di Medole as a centre, this being the only piece of ground suitable for cavalry shock tactics on a large scale. As a consequence neither cavalry division was of much service to its side.

Strategic Advanced Guard.—The Italian General Staff are believed to favour the principle of a strategic advanced guard. As far as these manœuvres are concerned little or no use was made of them, the only force that even in a modified degree fulfilled the function of a strategic advanced guard being the column of one infantry and one artillery brigade and four squadrons, which was despatched in advance by the Red Army from Verona to seize the passages over the Mincio.

The Three Arms combined.—The tactics generally showed an improvement on those of former years. Many of the movements were certainly conventional and out of date, but more regularity and method could be discerned than on previous occasions.

General Reserve.—No general reserve was retained, or so small a general reserve as to be of no practical value. For instance, in the attack of the Blue army on Volta Cavigliana on August 31st, the general reserve consisted of 1 cyclist battalion and 3 Bersaglieri battalions out of an army of 33 battalions; in the same action the Red Commander's general reserve consisted of 3 battalions and 1 cavalry regiment. This so-called general

reserve was only used for stopping gaps and not for striking. Such a course of action is partly due to the awkward formation of the army corps, which makes it impossible for the army corps commander to keep a large general reserve in hand without seriously interfering with the command of one or both of his divisional generals.

The Attack.—The tendency in attack was to split up the whole army into small attacking columns, with the artillery so distributed among them that central control was impossible. The attack on Volta Cavriana was carried out in five columns, each consisting of 1 infantry brigade with artillery attached, there being sometimes an interval of a mile between brigades; nowhere was there any depth.

The Defence.—In the defence nearly the whole of the defending force was usually allotted to the defence of the position. The bulk of the defending troops was, however, not always put into the front line; on August 31st the Red commander occupied a front of about 8,000 yards with 3 detachments consisting each of 1 entrenched battalion and 1 battery, leaving himself free to use the remainder of his force as circumstances might dictate. Unfortunately, when the attack was only just developing, he ordered a counter-attack which was premature as regards time and was only carried out by a portion of his force; the force engaged in this counter-attack moved forward in columns of route within effective range and was ordered back by the umpires. No decisive counter-attack was seen.

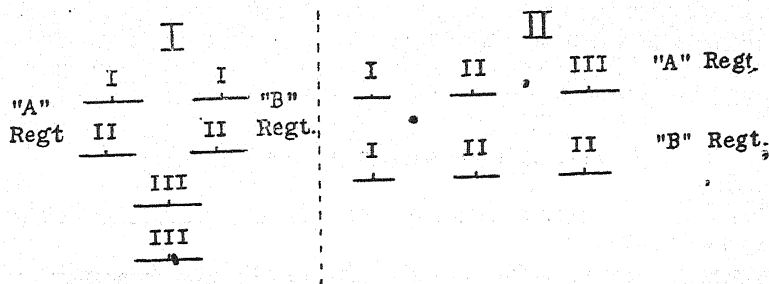
Night Operations.—Night marches were made on one or two occasions, and the Blue force moved very early on September 2nd to attack the Red position at dawn. The Foreign officers were not in sufficiently close contact with the troops to judge the conditions accurately.

General Impressions.—The chief impressions left upon the mind were the following:—

- (1) The method, both in attack and defence, of breaking up the force into several small columns without retaining a general reserve, deprives a commander of all power of influencing an action once it has commenced.
- (2) There was no co-operation between the cavalry and the other arms, and very little between the artillery and the infantry.
- (3) The effect of both artillery and infantry fire would be insufficient owing to defective training.
- (4) A proper appreciation of fire effect and of the relative vulnerability of various formations does not exist.
- (5) The troops are as yet capable of making only stiff and conventional movements; manœuvring to obtain tactical or strategical advantage is beyond them.

- (6) The commanders are slow and timid, and the regimental officers and non-commissioned officers have insufficient influence over their men.
- (7) The men, especially the infantry, appear to be rather listless.
- (8) In spite of present shortcomings a steady improvement is manifest.

Infantry.—Two formations are prescribed by the latest regulations for the brigade in attack. The first by wings, and the second by lines, thus:—



The first formation is the one usually employed, as it causes less confusion among the units. The second is only used when it is desired to keep a strong reserve in hand. The troops advance to the attack in quarter columns of battalions to within 3,000 yards of the enemy, and then form company columns which move up to within 2,000 yards or nearer. At these ranges there is apparently no thought of taking cover or assuming less vulnerable formations. At from 1,200 to 1,500 yards from the enemy the leading troops form section columns. At about 1,000 yards the two sections of each company are extended at single rank at one pace interval, being followed by the other sections in second and third line at intervals of about 150 yards. The advance is continued by alternate sections or alternate groups at a walk or slow double, no rushes ever being made. By the time a distance of 700 or 800 yards from the enemy is reached the second and third lines are merged into the first, which is consequently very much overcrowded. At this range fire is opened in attack and defence, as a rule. The guiding principle in the extension seems to be to establish a strong firing line at about 500 yards from the enemy's position. The reinforcement of the first line is continued by troops moving up, still in line at one pace interval or in small columns, without paying much attention to taking cover. It was never seen that the men were closed when cover was reached to get them in hand, nor that any attempt was made to reorganize

units mixed up during the advance. Fixed sights were used at 450 metres (about 500 yards). Occasionally, troops moving to an attack which may be followed by an assault left their packs behind. Entrenching tools, so far as was observed, were never used in the attack.

During the whole of the manœuvres no assault was seen. Attacking infantry as a rule halt at about 500 or 600 yards from the enemy's position, and at this range the fire fight takes place. On September 2nd, however, the lines of attackers and defenders were dovetailed into each other, but the troops remained in their relative positions until the cease fire sounded.

Ammunition.—Each man carries into action 180 rounds in cardboard packets containing three clips of six rounds each, two packets being carried in each pouch. The remainder is carried half on each side of the upper part of the pack, just under the upper fly. Sixteen ammunition carriers per company carry special knapsacks to contain 288 rounds in packets, in addition to their own ammunition. These men do not carry their packs. In addition, two S.A.A. carts carry a further reserve of 30 rounds per rifle.

It was not observed that the re-supply of ammunition in the field was practised.

Fire Discipline.—The fire discipline, as on former occasions, was extremely bad. Indeed, it may be said to be non-existent for practical purposes. Occasionally a section commander might mention a range or the number of rounds to be fired, but there was no control by company officers or section commanders of the direction of the fire or of the sights used. In most cases the men hardly troubled to put their rifles to their shoulders, and never went through the form of aiming with care. Sights in the same section might be seen placed at 500 or 1,500 yards. The men seemed very careless of their weapons which were, as a rule, filthily dirty and were used sometimes as alpenstocks to help their owners up and down slopes.

This year the number of rounds in the annual musketry courses has been increased, and more attention is being given to musketry generally, though there was little sign of it at the manœuvres.

No judging distance was practised, and no range-finders were used, although range-finders are supposed to form part of the equipment of each battalion.

Entrenching Tools.—The entrenching tools in use in the Italian Army are extremely good and at manœuvres were carried by all except reserve men, that is roughly by half the strength of the companies. They were never seen to be used in the attack, but were used on the defensive to improve existing banks and ditches, and to excavate an indication of entrenchments. In some cases the entrenchments were fairly well concealed, but on the other hand they were often badly sited and placed in conspicuous positions with little field of fire.

Sandbags.—As an experiment this year the three battalions of the 2nd Infantry Regiment were supplied with stout greenish-black sandbags fitted with cords running from the mouth to the two bottom corners.

The idea was that attacking troops should fill the sandbags and push and carry them in front of them when advancing.

Most of the officers with the troops using these sandbags stated that they were practically useless, as they were too small to give much cover and too heavy for the men to carry full. It is possible that if they had been shot at their opinion might have been modified to some extent.

Equipment.—The new infantry equipment gives satisfaction. The pack and haversack loaded weigh $29\frac{1}{2}$ lbs. The only objection to it is that the red canvas of which it is made is not sufficiently waterproof. The latest regulations prescribe that in the event of troops moving to the attack or making a forced march the packs may be left behind or carried, if possible, on requisitioned carts.

Tentes d'Abri.—The *tentes d'abri* in use in the Italian Army (which resemble those in use in the German Army) were particularly useful during these manoeuvres, as the troops bivouacked approximately where they stood at noon, supplies being brought up by motor lorries. The troops were thus rested and fed without delay.

New Uniform.—The new grey-green uniform was not worn by anyone except a few staff officers. The general issue of it will commence this year with the new batches of recruits and will be gradually extended until all the troops are supplied.

Cyclist Orderlies and Scouts.—Since the Grand Manœuvres of 1907 two innovations have been introduced in the infantry. These are cyclist orderlies, 4 per battalion or 12 per regiment, and scouts, 4 per company or 16 per battalion.

The cyclists are used as orderlies simply. They have the ordinary solid framed bicycle, to which the rifle is strapped.

The scouts do not carry a pack, and each group of four is under the orders of a sergeant. They may be assembled by battalions and placed under the orders of officers. They are used as reconnoitring patrols and with outposts. The sergeants are supplied with maps, and the men are selected for their general intelligence and activity.

Reservists.—Three years classes of reservists were called out for the manoeuvres. They joined the headquarters of units on August 16th and thus had 9 days training before the manoeuvres commenced. They formed nearly half the strength of the companies and were hardly to be distinguished from the other men. There was, however, a larger proportion of footsore men and sick among them than among the men with the colours.

General Conclusion.—The quality of the Italian infantry is in urgent need of improvement, as was emphasized by the Commission of Enquiry on the Army. Too large a proportion of the best men among the recruits are taken for the cavalry, artillery, "Alpini" and "Bersaglieri," with the result that the men left for the infantry are in all respects the least efficient. The officers also, although they have passed through good schools of instruction, suffer from many drawbacks which reduce their value as officers. Promotion is still extremely slow, and as officers have, almost without exception, no private means of their own, they live in very-straitened circumstances. The authorities are painfully anxious not to give any handle to charges of lack of consideration for the troops and consequently not nearly as much is got out of them as might fairly be expected. It certainly is the case, however, that this influence is diminishing. The discipline of the army, its prestige and efficiency are being screwed up gradually to a higher level.

Artillery.—The artillery entered on manœuvres armed with 4 types of guns:—

- (1) Bronze 87-mm. (3·42-in.) field gun.
- (2) Steel 75-mm. (2·95-in.) field gun.
- (3) Krupp 75-mm. (2·95-in.) Q.F. field gun.
- (4) Krupp 75-mm. (2·95-in.) Q.F. H.A. gun.

Organization.—The Divisional Artillery consisted of two brigades, one of 3, the other of 2 batteries—each brigade with its own headquarters.

All batteries had one wagon per gun. There were no ammunition columns or reserve wagons with the brigade.

The brigade headquarters consisted of 2 officers with about 6 to 10 men. It possessed no range-takers, signallers or telephonists. The men were used as orderlies only.

The battery staff consisted of orderlies and horseholders only. These seemed to number 4.

The battery was organized into sections, each of these consisting of two guns and two wagons. In the Krupp batteries each wagon preceded its respective gun when on the march.

There were no reservists with the batteries and their strength seemed to vary. It was stated to be from 70 to 120 men, the higher figure being only attained in some of the Krupp batteries.

Horses.—All the guns and the Krupp wagons had 6 horses. The majority of the older types of wagons had only 4. The wheelers of the teams have collars, the remainder breast harness.

The greater number of the horses appeared to be useful animals and showed a marked improvement in comparison with former years. They were in good condition and showed little sign of fatigue at the end of the manœuvres. In one case a brigade had teams which were not strong enough to haul the Krupp matériel over soft meadow without great effort.

The officers' horses were good, being mostly Irish. The establishment of horses of the six gun batteries was completed by loans from other units.

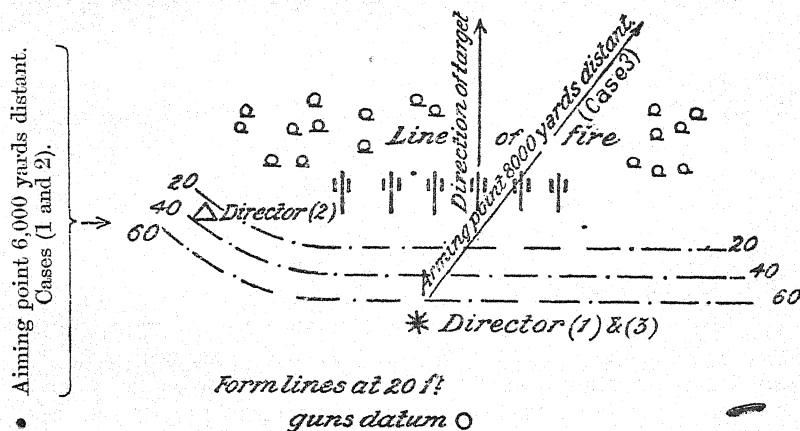
Fire Tactics.—The artillery tactics displayed during the manœuvres can only be described as primitive. The bronze guns were always placed on a crest, generally where a hedge or line of vines was available for concealing the battery. Concealment, often very imperfect, without cover was thus the rule. In several cases the older guns, which have no apparatus for indirect laying, were located behind vines, &c., so that no target could be seen over the sights. The battery commander in such cases often stood up on one gun whilst the remainder fired through the leaves.

The steel guns seem to be employed much in the same way. They were not closely observed in action.

The Krupp guns were better employed, and the officers seemed to make regular use of their indirect laying apparatus. Even so the training has not progressed beyond the case in which the battery commander's position is close to the guns.

The battery commanders were left entirely to themselves in the matter of control and duration of fire. They watched the action and occasionally ordered 1 to 10 rounds to be fired. These rounds were then fired regardless of any range, change of target, order of fire, &c. Two guns could be seen standing next one another with their sights at 550 and 3,300 yards respectively. The trails were never shifted except in one or two Krupp batteries.

Indirect Laying.—Each Krupp battery has two directors of an excellent type, and one of these is always used by the battery commander. So far the training with the new matériel has been very elementary. The following instances illustrate the facts sufficiently clearly:—



1. Director to guns 30 yards.
The angle of sight was calculated.

2. As above, but director placed at Δ 15 yards from nearest gun.

Same aiming point.

3. The director as in case (1) but only 10 feet higher than the guns. In this case the aiming point was 8,000 yards distant and in the line shown by the arrow. The targets were concealed behind trees, the latter being visible both from director and battery.

In case (3) the battery commander attempted a "switch," but the result was bad; two guns were laid well off the new line and another gun had to be laid by a subaltern as the layer could not read the drum sight.

Aiming posts were never seen in use.

Communications.—Signalling does not appear to be taught in the artillery, and no apparatus was seen. Telephones are said to be carried by brigades, but these, if in existence, were never used. Battery commanders gave their orders by word of mouth. Orderlies were seldom seen moving about between brigade and battery commanders; in practice the brigade commander stood by a battery.

Higher Control.—This was very little in evidence. At the defence of Volta on August 31st the artillery was allotted to three points and remained there. Each was on a height with apparently no central control.

The artillery of the division attacking Volta was similarly divided up between two columns—three batteries on the right two on the left—and apparently no central control existed.

Range-finders.—One "Gautier" range-finder is carried by each battery but is never used. It is a one-man instrument, the range being found by solving a triangle.

Horse Artillery.—Little opportunity was available for observing the use of the Horse Artillery. It would seem that batteries are often split up, and sections allotted to a regiment or two or three squadrons, when these are working independently. On such occasions their use would differ little from that of machine guns. Such a method may find some justification when working in the tangle of enclosed roads in Lombardy, but in the Garda region this would be a more doubtful proceeding.

The driving seemed good and determined.

Heavy Artillery.—On the 31st August 1909 a battery of four 14.9-cm. (5.8-inch) B.L. howitzers were brought into action at Volta. The equipment was 30 years old, and the method of fire was equally antiquated.

The four guns were absolutely exposed to hostile field artillery fire at 4,000 yards. They were laid direct by tangent sights. Three guns were roughly laid on one target (a clump of trees and some houses), the fourth gun was laid 30 degrees

more to the right. Some twelve battery salvoes were then fired at the Battery Commander's word of command without any alteration of sights.

These howitzers were brought up by civilian teams and drivers. Six horses went to a team. The felloes of the wheels were fitted with a belt of broad hinged shoes (*Cingoli Buonagente*) for crossing soft or broken ground. The device is well spoken of by Italian officers, and the guns were seen coming up a bad hill with great ease.

Entrenching.—This was not carried out on any occasion except in the case of an experimental battery of four field howitzers. (These guns were not seen.) The epaulments were dug by infantry and presented no features of any interest.

Entrenching, it may be conjectured, is never practised by Italian gunners. For entrenching, the officers stated that they would use the picks and shovels carried on each battery vehicle for the work:—24 picks and 24 shovels (Krupp batteries).

Ammunition Supply.—This was not practised at manœuvres. The columns, being divisional units, are disposed of by the divisional staff. It seemed doubtful if any battery commander would have known where his ammunition would have been renewable.

The divisional columns were composed of two sections for artillery and one section for infantry ammunition. These sections marched separately with the various brigades and columns. They had never, as far as could be ascertained, any definite orders for their work beyond the march orders.

With the new equipment, 18 wagons will go to a battery. Six will be firing-battery wagons, six will remain in first reserve, whilst the remaining six will form a second reserve about 650 yards behind the firing battery. The ammunition columns are to be roughly 1,100 yards in rear of the guns.

At manœuvres the sections of divisional and corps ammunition columns were never represented by more than 4 ammunition wagons or carts.

Method of indicating Artillery Fire.—When a battery was in action this fact was notified by hoisting a disc 3 feet in diameter on a pole 10 feet high. The disc always faced the target, and its colour varied according to the nature of the target.

Red indicated infantry targets.

Yellow indicated artillery targets.

White indicated cavalry targets.

When a battery fired from behind cover, the disc was shown on rising ground in front of or behind the battery.

Night Firing.—The artillery was not seen in action at night, but on the night of September 1–2 slow artillery fire continued all night, probably in combination with searchlights (*see page 156*).

General.—The batteries of the group were almost always kept close to one another.

Horse and field batteries alike keep the upper flap of the shield up when on the march. The limbers and teams remained very close to the firing battery. At the defence of Volta, where cover was favourable, they stood 50 yards behind the guns. The attacking batteries kept their teams 300 yards back, but the latter had no cover whatsoever; it would, however, have been difficult to find any close at hand.

The officers of the Krupp batteries, however, are beginning to make efforts to train their units in a more thorough manner. There was a very distinct difference between the work of the bronze and Krupp batteries.

Dummy Shell.—In firing blank the Italian artillery use a smokeless charge and a wooden shell. The latter is a wooden cylinder sawn into 32 segments, but which still adhere at the centre. There are also three shallow cuts on the circumference of the shell.

The shell allows the charge to develop pressure in the gun producing a very sharp report. But it often happened that fragments of burning segments were carried 30 or 40 yards from the muzzle. In a very few cases the cylinder did not break up at all; once a projectile of this kind fell close to some infantry 200 yards in front of and below the battery.

Cavalry.—In respect to the cavalry there is not very much to add to former reports.

The strategical handling of the large masses of cavalry has already been referred to.

The reduction of the regiments from 6 to 5 squadrons for the purpose of forming the 5 new regiments had not been completed at the time of the manœuvres, and four of the regiments came out with their 6 squadrons complete. There were no reservists with the cavalry.

Horses.—There has been a very noticeable and surprising improvement in the quality of the cavalry horses. The benefits of the Government system of breeding remounts are being shown very clearly. The heavier Lancer regiments are mounted on big horses showing a good deal of breeding and comparing well with the cavalry horses of any army. The influence of the English thoroughbred stallions as regards these horses is very clear. The officers spoke in the highest terms of their endurance and good qualities. During the manœuvres they had a good deal of hard (although unnecessary) marching and were kept for long periods without water or food. The proportion of sick horses was, however, exceedingly small. There were few lame horses and no sore backs (except among the horses of the machine gun sections, to which allusion will be made later). The horse-flesh all round made an exceedingly good impression.

It is not too much to say that the improvement which has taken place in the short space of three years seems almost

impossible. Italian horse-mastership is now at a high level, and the only serious criticism seems to be on the score of the rations, which are only 7-7/10 lbs. of oats for the light cavalry horses and 9-9/10 for the heavy cavalry horses per diem.

The best of the light cavalry horses are the Sardinians. These constitute about 50 per cent. of the light cavalry horses of the army at the present time.

It seems, indeed, that the horse difficulty, which has long been a serious one in Italy, is, thanks to the energetic measures taken by the Government, in a fair way to solution so far as cavalry is concerned.

Horsemanship.—The horsemanship of the troops appears also to have improved considerably within the last few years. The horsemanship of the officers is, as is well known, remarkably good, and this appears to be extending to the troops in an increasing degree. The same principles of equitation are followed in teaching the men as in teaching the officers and, latterly especially, every effort has been made to encourage the men to improve and to give them a liking for riding.

Cavalry v. Cavalry.—No encounters were witnessed between the two rival cavalries, but from the accounts given of the two important engagements, which took place on August 26th on the Campo di Medole and on August 29th in the hills near Solferino, it seems that the method of fighting was identical with that reported in connection with the cavalry manœuvres of 1906.

Scouting.—Where the scouting of the cavalry could be observed, it appeared to be systematically and well carried out. Patrols and individuals took great trouble to hide themselves from view and appeared generally to be working with intelligence. It is evident, however, that the information supplied by the Red cavalry to the Red Army could not have been very satisfactory, as the Red Commander was continually anticipating an attack from the direction of the southern shores of the Lake of Garda. Such an attack could not have been possible at any time during the manœuvres, as the whole of the Blue force was advancing from the direction of Cremona.

Dismounted Action.—Italian cavalry is, as a rule, very reluctant to dismount and act on foot for any purpose, and the liberal dotation with cyclist infantry (*see* page 150), is likely to increase the tendency. It was stated in the narrative of September 1st that an attack on the rear of the Blue Cavalry Division was repulsed by the fire of two squadrons on foot, assisted by machine guns and artillery. This was the only instance heard of of the cavalry acting on foot.

Machine Guns.—Machine gun sections were allotted by sections of two guns to each cavalry regiment, except the corps cavalry. For further details, *see* page 151.

Communications.—Although experiments are being made for the adoption of a light wireless apparatus to accompany

cavalry divisions, no such apparatus was in use at the manœuvres nor did the cavalry make use of the existing telegraph wires by means of temporary attachments or in any other way.

Carrier pigeons were not utilized. It was noticed that each regiment carried the usual equipment of cages, &c., but that the cages were empty.

Engineers.—The Bridging Company of the Vth Army Corps threw a bridge about 80 yards long across the Minçio near Salionze. The point selected was at the head of a weir where a small island divided the river into branches. Across the island, which was swampy and about 20 yards wide, the road bearers and transoms lay on the ground. Across the open water, the bridge was carried on pontoons. The bridge was well constructed and capable of bearing any reasonable load, even heavy motor cars, though the approach on one side was steep and difficult. A point of interest was that minutely detailed orders, covering a sheet a yard high and a foot wide in very close writing, was posted up on one side of the bridge to regulate the traffic. The orders were so elaborate that nearly an hour's study would be required to enable the points to be grasped. Consequently, no attention whatever was paid to them.

Cyclists.—An interesting feature of this year's manœuvres were the battalions of "Bersaglieri" cyclists. Two battalions were formed of four companies each, and these two battalions were each attached to one of the cavalry divisions. The companies were on an average 170 strong. One company of each battalion was attached to the headquarters of the cavalry divisions, and a portion of the men were also utilized as orderlies with the headquarters of the army corps and infantry divisions. The remaining three companies formed tactical units under the battalion commanders. The men were mounted on the "Melli" folding bicycle and were armed with the cavalry carbine. The transport with each battalion consisted of one 16/24 H.P. Fiat motor lorry capable of carrying 2,000 kilos. (about 2 tons).

In each company were carried, among the men, sufficient spare parts to make up two complete bicycles; also two sets of telephone material and climbing irons and additional stores for tapping telegraph lines. In each company were further carried two cases of guncotton and two cases of fuses and detonators, one man carrying one case of each. The guncotton in each case weighs 900 grammes (nearly 2 lbs.). Some of the officers had private motor cycles.

The work done by the cyclist battalions was very much appreciated by the cavalry commanders, and they earned the enthusiastic praise of the whole army. They are capable of covering 70 or 80 miles in the day with ease and on occasion more. The men are excellent and ride extremely well. The battalions when moving together on the main roads kept very well closed up and moved at considerable speed. Their employ-

ment with the cavalry division was purely tactical. They did no scouting for the cavalry, but were utilized to move ahead of the cavalry division to seize any junctions, villages, bridges or other points of tactical importance. When working closely with the cavalry divisions they acted as mounted infantry in support of the cavalry.

Another feature of this year's manœuvres was the employment of a number of volunteer cyclists, 300 of whom were serving with the Blue Army Corps. These were divided into sections according to the town from which they came. All of the men belonged to the national organization called "Volontari Ciclisti Automobilisti," which received official sanction about two years ago. They wore civilian clothes with the club badge on their hats, and carried the cavalry carbine, belt and pouches, and a bandolier supplied by Government. The men at the manœuvres were of the clerk or student classes and seemed very intelligent and keen. They were all supplied with maps and many had field glasses. They were placed in batches of about 12 under leaders, who were again under orders of the section commanders. They were used exclusively for reconnaissance work and scouting, and for war purposes they would furnish a useful body of cyclists, though in case of a general mobilization it is evident that many of them would be called out with the troops.

Machine Guns.—The machine-gun sections are copied from the corresponding organization in the Swiss Army. It appears, however, that the Italians have made some mistake in the pack-saddles, especially for the guns and tripod, as complaints were universal that the horses got sore backs. This is unheard of in the Swiss Army, no matter what the distance or how rough the ground travelled over. It points to a defect in the Italian pack-saddle which probably can be easily remedied.

The infantry machine guns and their ammunition were carried in the same manner as in the cavalry sections but on mules; the men marching on foot and the mules being led.

Both the cavalry and infantry equipments appear very practical (when the defect causing sore backs is removed).

The weapons employed were the "Perino" and "Maxim" guns in equal numbers, both using the Italian rifle ammunition.

The infantry machine guns were used in a very primitive fashion, usually in the firing line. They were invariably placed in pairs on an open road or similar conspicuous position and never more than 5 yards apart. They were brought up, with the mules, in the most ingenuous manner and without any attempt at concealment to within 600 or 700 yards of an enemy in position. It never seemed to occur to the officers in charge that they might have been used to give covering fire to assist their own infantry or that concealment and protection were in any way desirable.

No range-finders were used with the machine guns nor any system of independent line of sight. No special rules were given to the umpires to estimate the value of the fire.

The machine guns were not seen in action with the cavalry, but it was stated that they were used much in the same manner as with the infantry. It is to be assumed that before long some principles for the employment of machine guns will be laid down. In any case the experiments at this year's manoeuvres represent a considerable advance on the state of affairs existing three years ago, when a couple of machine guns were used with each cavalry division mounted on field gun carriages from which they could not be detached.

The cavalry sections consisted of 2 guns with 1 lieutenant, 1 sergeant, 3 corporals, 21 privates, 6 pack and 26 riding horses. No S.A.A. wagons were provided for the machine guns, and they were thus dependent entirely on the 2 pack ammunition animals per gun, carrying 4,000 rounds together.

The infantry sections consisted of 2 guns with 1 lieutenant, 1 sergeant, 2 corporals, 8 privates, and 8 pack mules (2 for guns, 4 for ammunition, 2 for tools, spare parts and kit).

Marches.—The march discipline of the Italian army is improving. There is not nearly so much straggling as in former years, and the columns are very quiet—indeed, talking is forbidden on the march. This is perhaps necessary, as, owing to the normal vivacity and loquacity of Italians, it would be difficult to maintain discipline if the men were not made to keep silence. It perhaps gives an exaggerated impression of the depression and unwillingness of the troops.

As a rule the infantry columns march with one file on either side of the road, leaving the centre free for wheeled traffic.

This year the marches were not very long, and the troops were capable of doing much more than was required of them.

Two marches are worthy of mention and show that Italian troops can march if required. The cadet battalion left Rezzato at 6 p.m. on August 30th, having halted for 3 hours *en route*. It reached Medole at 8 a.m. on the 31st August, came into action for a short time and then continued the march to Guidizzolo, arriving there at noon. The total distance covered was $32\frac{1}{2}$ miles in 18 hours in addition to the combat. The packs were left at Aquafredda and brought on by requisitioned wagons. The cadets had done 3 weeks' field training before manoeuvres.

Another long march was that of the Bergamo Brigade, consisting of 4 battalions which marched from Salo to Guidizzolo (nearly 40 miles) in 36 hours, allowing for six hours rest on the way at Castenedolo. This brigade went into action immediately on arriving at Guidizzolo.

The march discipline of the transport columns still leaves a great deal to be desired. In particular the regimental hired transport, supplied by contract, was very bad.

The discipline among the men of the escorts, the military drivers and the civilians in charge of the hired transport was very lax. The vehicles were also exceedingly badly loaded, looking more like carts full of Oriental bazaar rubbish than the military transport of a regular army.

Medical.—Considerable development was given to the work of the Red Cross Society. The authorities are endeavouring to make use more and more of this organization, by giving the Red Cross hospitals a definite place in the field army.

A field hospital of 50 beds was organized to accompany each side, and in addition there was a floating river hospital of 200 beds organized in barges on the River Po. This latter was not seen. The field hospitals were visited, and their organization and equipment were found to be excellent. Each hospital consisted of 12 double-fly two-pole tents with rounded ends of white canvas somewhat resembling what is called in India a "Swiss Cottage" tent. The tents would appear to weigh about 4 cwt. Four of these tents were fitted with 12 beds each for patients, the remainder were used for stores, dispensary, quarters, &c.

The staff consisted of 1 surgeon in charge, 3 or more assistant surgeons, 2 apothecaries, and 48 bearers, male nurses, &c., &c. The surgeons and staff were Red Cross volunteers, and the whole of the *matériel* was the property of the Society. The transport consisted of Government 4-wheeled transport wagons. The equipment of these hospitals appeared satisfactory in every way and was copied to a certain extent from the British Field Hospital which H.R.H. the Duke of Connaught sent to Catona, in Calabria, after the great earthquake.

Regular Medical Service.—Concerning the Medical Services of the regular army, one or two innovations are worth reporting.

The Divisional Field Hospital of the Red Army Corps was equipped experimentally with a hospital tent, of German manufacture, resembling the "tortoise" tent. This tent, which was of green waterproof canvas and weighed 14 cwt., had a double fly and was about 20 feet square inside the inner fly. It had nine poles, one in the centre four disposed half way to the sides round the centre and four more at the corners. It had two doors opposite each other and two window openings on the other sides. The arrangement of the poles caused the roof canvas to sag, and it is doubtful if the tent would be very waterproof. It was intended to be used as a hospital, or operation tent, or office. 24 beds could be placed in it if used as a hospital. An experimental telescopic aluminium operating table was included in the equipment; also a new acetylene apparatus for two lamps, one with a reflector to hang inside the tent, and the other on a 9-ft. pole outside the tent to act as a Red Cross night sign and to illuminate the neighbourhood of the hospital. The generator consisted of two steel

cylinders and was 1 foot 6 inches in total diameter. The gas was carried to both lamps by indiarubber tubing. A chest containing tubes of calcium carbide, sufficient to supply gas for 5 or 6 nights continuous burning and weighing 1 cwt., formed part of the equipment. The hospital equipment also included some acetylene hand-lamps, similar to a bicycle lamp though rather larger, to be used for searching for wounded at night.

The ambulance wagons were the old pattern designed to carry eight wounded sitting or, by reversing the seats, three wounded lying down. These wagons, however, are shortly to be replaced by a better and more comfortable type.

A new medical knapsack is provided for the hospital attendants. It is painted grey with a large Red Cross on the outer flap. It is made to fit the curve of the back and shoulders of the bearer. Its weight when full is 25 lbs. as against the 32 lbs. of the old pattern equipment. It carries bandages and all the appliances for first aid.

A medical reconnaissance of the district was made before the manœuvres took place to detect any cases of infectious diseases.

The general health of the troops was excellent. The medical units were very weak, and little effort seemed to be made to take advantage of the manœuvres to derive medical-tactical or medical-strategical lessons. The few sick that had to be dealt with were treated in improvised hospitals arranged in school or municipal buildings, and were evacuated to their own stations as soon as they could be moved.

MOTORS.—The motor transport employed consisted of 18 military and 25 civilian cars, 30 military and 30 civilian motor cyclists, and 30 military transport lorries. The civilian motor cars were generally driven by their owners and were supplied by the members of the "Voluntari Ciclisti Automobilisti" National Association. The military motor cars, cycles and lorries were in charge of the engineer motor establishment. With each army were six motor cars for the use of officers and 31 at manœuvre headquarters. The lorries were Fiat or Itala, 4-cylinder, solid-tyred vehicles of three types, 14, 18 and 24 H.P., with a carrying capacity of one, one and a half, and two tons, and a speed of about fifteen to twenty miles per hour. In addition to the military motors there was on each side a Field Post motor wagon which conveyed the letters and parcels to the headquarters of each division.

At manœuvre headquarters and at the headquarters of each army corps there was a motor park. A large neutral garage was established at Medole with 3 officers and 12 mechanics and a workshop for the execution of small repairs.

Billets and Bivouacs.—In peace time the Italian authorities are not legally entitled to demand billets for the troops. The troops are billeted, if billeted at all, only in schools or

other public buildings. As a general rule the troops bivouac, being supplied with straw for their tents whenever possible. The *tentes d'arbri* carried by the men are very convenient under the circumstances, and the bivouacs are very rapidly formed. The tents this year were placed very close together and, as the bivouacs were intended to be occupied for six hours only, no special arrangements appear to have been made for the latrines, &c.

When billeted the troops drew their supplies in the same manner as when bivouacked. The regimental supply wagons—filled up the day before from the motor lorries—came as close to the troops as practicable, and fatigue parties were then sent to draw the rations.

Telegraph and Telephones.—The installation employed this year was identical with that employed in the manœuvres of 1907. One central station was placed at the headquarters of the Umpire-in-Chief. Another station was with the headquarters of each of the opposing forces. The Director of Manœuvres communicated with the Umpire-in-Chief's headquarters by telephone from his headquarters at Cerlungo. Field telegraph cables were employed to connect the headquarters of each division with the headquarters of the army corps.

The field telephone, of which there was one section with the Red Army, was employed on one occasion only—along the defensive line occupied by the Red Army Corps on August 31st.

Aeronautics.—The balloons employed were:—one spherical balloon with the Blue force, and a "Drachen" balloon of German construction, with the Red force.

The former was observed on several occasions but never at a greater altitude than 500 feet. It is not likely that it can have been of much use. Communication with the ground was either by means of a telephone or a megaphone, the latter being more frequently used. Occasionally the balloon was prevented from ascending, it was stated, by the wind. On the Red side the "Drachen" balloon was never observed to really ascend at all, the reason given being that if seen it would betray the centre of the position. The "Drachen" balloon was very well equipped with barometer, anemometer glasses, telephone, &c. On September 2nd when the Red force was withdrawing across the Mincio, closely pressed by the Blue force, the "Drachen" balloon was seen stationary for a long time at about 100 feet elevation within 2,000 to 4,000 yards range of the batteries of the Blue side.

No dirigibles or aeroplanes were used.

Signalling.—The telegraph companies of each army corps were equipped with 12 "Faini" combined heliograph and signalling lamps. These are identical with those formerly reported on. Acetylene gas for the lamps is provided from a steel cylinder screwed on underneath. The light is very good,

and even in bright sunshine can be seen at 10 or 12 miles distance. Not much use was made of them at the manoeuvres, and the operators have so little practice in sending or in taking messages as to be almost useless. An instance of this may be mentioned when the corps artillery of the Red Army Corps remained in action for over an hour after the cease fire had sounded, the signallers with the Director of Manoeuvres being unable to make it clear to a signal station close to the position of the Red Corps Artillery that the operations had come to an end.

The only other means of signalling consisted of 12 small red flags for Morse code signalling carried by 6 men in each infantry company. In practice these were scarcely used at all.

Searchlights.—Two of the searchlights forming part of the equipment of Peschiera were employed on the last two days of manoeuvres. These searchlights were 60-centimetre (23·6-in.) projectors of old pattern by Schuckert, of Nuremburg. The engine and dynamo are carried on separate wagons, and about 1,000 yards of cable permits them to be worked at a distance from the projector which is a fixture on an iron-framed wagon.

These searchlights were used, it is said, on the nights of 31st August and 1st September; they, however, were not seen on this occasion.

Supply.—The supplies for each day were carried by the regimental supply wagons which, as soon as empty, were filled up again from the motor lorries running backwards and forwards each day to and from the base of supply. The Blue army was based for its supplies at first on Cremona and later on Asola, and the Red army on Verona. The base at Verona was the regular supply depôt of the Vth Army Corps. The bases at Cremona and Asola were provisional, but no opportunity was afforded of visiting them. About a fortnight's notice had been given in order to enable contractors to accumulate a certain quantity of supplies at various points in the manoeuvre area. As the plain of Lombardy is highly cultivated there was never any difficulty in obtaining all the supplies required.

The supply services were exempt from the rule imposing a general halt between the hours of noon and 6 p.m., and advantage was taken of the resting hours of the troops to push up the supplies. By this method the supply columns with the troops were rendered unnecessary. It was a subject of comment among the foreign officers attending the manoeuvres that the supply service worked very well, and that the troops appeared at all times to be regularly and well fed.

Two sets of field cookers were being experimented with this year. One was the "Gonella" field cooker which was reported on in 1907. The other was the "Achellini" apparatus acting on the principle of the Thermos flask, and consisting of a cylindrical cauldron with double walls and an asbestos filling

between. It has a top to fasten down with nuts and washers. It stands on three short legs and a small wood fire is kindled underneath. When the desired temperature has been imparted to the contents, which takes 10 or 15 minutes, the fire is removed and the top sealed. The apparatus itself maintains the temperature, and the process of cooking is continued for five or six hours longer while the cooker is carried along on a wagon or in any other way. About one-tenth part of the amount of wood is required in comparison with the ordinary method of cooking the same quantity of food.

At the manœuvres five of these cookers were supplied for two companies of infantry, making 10 per battalion. On a war footing it would be necessary to have about five cookers per company, as a single cooker prepares a meal for about 50 men at once. But the capacity of the cookers can be varied to suit other conditions.

On all sides it was stated that the food was excellent and extremely palatable when cooked in this apparatus, and that it had the great advantage of supplying a good hot meal at almost any time it might be required.

The only drawbacks against the "Achellini" apparatus were that it was not sufficiently strong in construction to stand knocking about in transport wagons, and that the sealing arrangement was not always quite satisfactory.

The reserve rations, of which every man carried two, and which were not to be consumed without special orders, consisted of 14 oz. of biscuit and $7\frac{3}{4}$ oz. of tinned meat.

On manœuvres the men were given coffee in the morning early. As soon after mid-day as possible they had a meat meal with soup and bread and in the evening another hot meal with macaroni or rice. The quality of the food was good.

Horse Transport.—The horse transport with the cavalry consisted entirely of the new regulation 4-wheeled transport wagon drawn by three horses, introduced in 1906. The establishments present at manœuvres consisted of 3 wagons for the staff of each regiment (1 medical, 1 supply, 1 baggage), and 2 for each squadron (1 baggage and 1 supplies and kitchens), making 15 vehicles per regiment.

The infantry transport consisted of:—

For the regimental staff, 3 two-wheeled 2-horsed carts (1 medical, 1 supplies and kitchens, 1 baggage) and, attached, 2 *vivandière* wagons (construction and number of horses immaterial); for each battalion 5 two-wheeled 2-horsed carts (1 for bread, 2 for supplies and kitchens, 1 S.A.A., 1 baggage). This made 18 vehicles per regiment. For the infantry also four hired water-carts were provided per battalion, which consisted of a large barrel on a two-wheeled platform cart drawn by ~~a~~ horse or a couple of ponies.

In 1906 the transport for all units was made up of regulation wagons and, for all the units which, like the infantry, do

not keep up the establishment of first line transport horses in peace time, horses were borrowed from the artillery all over Italy. This year, in consequence of the inconvenience experienced in 1907, hired transport was supplied to all the units which do not keep up the establishment of horses in peace time. Consequently the whole of the infantry transport was hired and consisted of two-wheeled two-horsed vehicles, closely approaching the regulation vehicles in carrying capacity.

The *vivandière* wagons are not regulation, but are permitted and attached to the staff of the infantry regiments. They sell "coffee bar" goods to the men and sometimes additions to the rations for the officers.

The establishment of transport with the artillery, in addition to the ammunition wagons, was the first line transport, consisting of 1 regimental 2-wheeled 2-horsed cart for the staff of each "gruppo" (5 or 6 batteries), another for the staff of each brigade (2 or 3 batteries), and 2 regulation 4-wheeled 4-horsed wagons for each battery (one for supplies, kitchens, and baggage, and the other for forage).

All the regulation wagons with all arms had tarpaulins with the number of the regiment painted on them, the numbers also being painted on the sides of the wagons.

The hired transport, which was all supplied through the agency of one contractor, had large labels pasted on the bodies of the carts indicating the unit to which they belonged. The drivers wore panama-shaped straw hats with red ribbons with the words "Transporti Militari" worked on them. Their clothing was otherwise entirely civilian.

The hired transport horses were a poor stamp of animal and, though able to do the amount of marching required at manœuvres, would not have been fit for a campaign.

Cadets.—The employment at the manœuvres of the cadets from the Military College and Academy is worth mentioning. With the cavalry cadets a squadron was formed consisting of 90 cadets and 30 cavalry privates, the latter being grooms and attendants. This squadron was employed as an additional squadron of corps cavalry with the Blue force and distinguished itself on the first day of the manœuvres by making a 50-mile march. The cadets of the artillery and engineer school, called the Academy, were joined with the infantry cadets to form a battalion which included three yearly classes of infantry cadets and one extra class, 87 strong, of non-commissioned officers candidates for commissions serving at the Infantry School at Modena. The total strength of the battalion was about 650 cadets and N.C.O.'s. It was equipped in every respect precisely as an ordinary battalion of infantry and was commanded by the officer instructors of the School and Academy. The physique of the cadets was remarkably good; they were extremely keen and had the general appearance of being at least two or three years

older than they actually were. They bivouacked and were treated precisely in the same manner as the other troops.

Arrangements for Foreign Officers.—Twenty-four foreign officers attended the manœuvres and were lodged at two hotels in Desenzano to the north-west of the manœuvre area. All arrangements as regards them were in the hands of Lieutenant-Colonel Diaz, of the War Ministry, and nothing could have exceeded the courtesy of this officer and his assistants. All the arrangements were excellently organized, and on 28th August the foreign officers were honoured in addition by an invitation to dinner with His Majesty the King who received them most kindly.

J A P A N.

The grand manœuvres took place from the 6th to the 9th November, both days inclusive, in the northern vicinity of Utsunomiya.

They were preceded by regimental, brigade and divisional manœuvres lasting 5, 4 and 3 days respectively.

STRENGTH AND COMPOSITION OF THE OPPOSING FORCES.

The troops taking part in the grand manœuvres were divided into a northern army (Red) and a southern army (Blue).

The composition and strength of the respective armies was as follows:—

Northern Army (Red).

Commander:—General Viscount Hasegawa.

Chief of staff:—Major-General Shigemi.

2nd Infantry Division.

7th Infantry Division.

8th Infantry Division.

1st Cavalry Brigade.

Total:—35 battalions, 17 squadrons, 1 battery of horse and 18 of field artillery (all 4-gun batteries), 2 mountain batteries (6-gun), 12 infantry machine-gun batteries (6-gun), 1 cavalry machine-gun battery (8-gun), 9 companies of engineers and 3 telephone sections.

Southern Army (Blue).

Commander:—General Viscount Nishi.

Chief of staff:—Major-General Ochiai.

13th Infantry Division.

14th Infantry Division.

3rd (Reserve) Infantry Brigade.

2nd Cavalry Brigade.

Total:—30 battalions, 14 squadrons, 1 battery of horse and 12 batteries of field artillery, 8 infantry machine-gun batteries, 1 cavalry machine-gun battery, 6 companies of engineers and 3 telephone sections.

The number of troops taking part in the manœuvres amounted to 47,720.

COUNTRY.

The grand manœuvres took place within an area about 25 miles broad and 50 long, lying immediately to the N.N.E. of Utsunomiya.

The country is hilly and much intersected by rivers running through narrow deep valleys in an easterly direction until they join the river Nakagawa on the eastern limit of the manœuvre area.

The right bank of each of these rivers, possessing good natural cover, good artillery positions, a field of fire and view for about 3,000 yards in a northerly direction, and admitting of tiers of fire being employed, formed very strong natural defensive positions. This, combined with the fact that the rivers were no obstacle to a forward movement, rendered them peculiarly suitable for defensive-offensive action.

Apart from these distinctive features, the country is much enclosed, the surface consisting of about two-thirds woodland, passable only by infantry, and one-third rice-fields.

The rice having been harvested, the fields provided occasional open tracts of country which were, however, limited in extent and rarely exceeded 1,000 yards in either direction.

These fields were for the most part soft and marshy and, as they were intersected by small streams, restricted considerably the movement of artillery and cavalry.

The difficulty of columns keeping touch was much increased by the thickly wooded country which intervened. With the exception of the main roads, all communications were either narrow woodland paths or mountain tracks, usually impassable by artillery. The country as a whole is suitable to the movements of large bodies of troops, though its enclosed nature necessitated cavalry action being chiefly confined to roads and paths.

No ground was placed out of bounds, consequently no restrictions were imposed on the movements of troops on this account.

The troops were not permitted to make use of the railway and existing lines of telegraph.

NATURE OF THE OPERATIONS.

According to the general idea, a northern army (Red) was advancing south from the direction of Shirakawa against a southern army (Blue) advancing north from the direction of Utsunomiya.

The object of each force was limited to the defeat of the army opposed to it.

With no object but this in view, the operations were planned of that value and interest which the introduction of an element of strategy would have occasioned.

The movements undertaken led to both forces attacking each other in turn on the line of the Kinugawa River, the Blue

force attempting to defeat the Red force before the latter had fully concentrated, and the Red force, after resisting this attack, turning upon the Blue with its whole strength.

The Blue army was eventually re-inforced (on paper), and the operations in the end resulted indecisively, the northern army being successful on their left flank, but being defeated on their right.

METHOD OF CONDUCTING THE MANŒUVRES.

Early in the spring, the Chief of the General Staff formulated the scheme for the grand manœuvres and despatched officers of the general staff to reconnoitre personally the area selected. In rendering reports information was to be given as to the suitability of the ground for carrying out the operations contemplated, the tactical situations likely to ensue and the facilities afforded for billeting and supply. The manœuvre area having been definitely selected, the outline of the scheme was submitted to general officers commanding those divisions destined to take part in the grand manœuvres. In this way, divisional commanders were enabled to formulate schemes and select areas for their own divisional and brigade manœuvres, continuity of plan was ensured throughout, and the troops found themselves on the conclusion of each phase of the operations in positions from which subsequent manœuvres could at once be entered upon.

This system seems to have worked admirably, and as a result, the troops underwent a minimum of unnecessary fatigue and exertion.

The grand manœuvres, nominally under the Emperor, were in reality directed by General Count Oku, Chief of the General Staff.

Umpiring.—His Majesty, the Emperor acted as chief umpire, being assisted by the Chief of the General Staff. The umpires and assistant umpires numbered 53.

Umpires did not greatly interfere with the movements of troops, and it seldom happened, even when impossible situations arose, that troops were put out of action, the opinion being held that such a course has a depressing effect upon the men.

The chief duties of the umpires were to report, on the cease fire sounding, the exact dispositions of the units to which they were attached, and to interfere if in their opinion orders issued by commanders seemed likely to produce a situation not in accordance with the wishes or views of the director of the manœuvres. Consequently, umpires were always present when orders were issued, and it was not infrequent that at such times they offered suggestions which caused modifications to be made in them.

In this way movements of troops were limited to prescribed areas, encounters took place on selected ground, and troops at

night found themselves billeted or, in bivouac in proximity to fixed supply depôts, the positions of which were known only to umpires, and made known to commanders only at the latest possible moment.

• In fact, the movements of troops were practically subordinate to the question of supply, or in other words to the position of supply depôts, thereby greatly increasing the difficulty of reconciling manœuvre with war conditions.

Units considered by an umpire to have suffered heavy loss are ordered to stand fast for a stated time or retire a certain distance. They no longer display a "loss flag" for the information of the enemy, as mentioned in last year's manœuvre report.

Distinguishing marks.—Umpires wore a white band on the left arm; unattached spectators and orderlies of umpires or directing staff, a red band on the left arm.

The northern army wore white cap bands. Artillery firing on infantry displayed a large red flag suspended between 2 bamboo poles; when firing on cavalry a white flag was used suspended in the same way.

A red and white flag marked the position of a machine gun battery.

Working of the scheme.—The chief umpire kept complete control over the operations as they proceeded. If impossible situations arose, or unforeseen developments transpired, fresh instructions were quickly forthcoming.

The fact that the scheme was carried out on a fixed plan, and that movements of troops had to conform rigidly to it, at once deprived commanders of any opportunity of displaying what initiative they possessed.

Further, decisions which at times in no way coincided with the actual result of an encounter had perforce to be made.

Officers attending the manœuvres.—Apart from official guests and foreign military attachés, a large number of officers of divisions not taking part in the manœuvres, and officers of the 1st and 2nd Reserve (*yobi* and *kobi*) were present.

Maps.—All officers and warrant officers, and a large number of non-commissioned officers were supplied with maps. Privates of cavalry regiments were also for the most part in possession of them. The maps were of two kinds, scale $\frac{1}{20,000}$ and $\frac{1}{30,000}$. All officers and nearly all non-commissioned officers and men could read maps well and quickly, and make rough but clear sketches which were at times invaluable.

• Special attention and much time are expended on the education of men in this subject.

Field Glasses.—The majority of officers do not possess field glasses of their own, but were issued with them from

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Special attention and much time are expended on the education of men in this subject.

Field Glasses.—The majority of officers do not possess field glasses of their own, but were issued with them from

mobilization stores prior to the commencement of the manoeuvres. A certain number of glasses were also issued to non-commissioned officers. The glasses are all of the Zeiss pattern.

Conferences.—At the conclusion of each day's operations during brigade and divisional manoeuvres, two conferences (one for each side) attended by all officers and warrant officers took place, at which the director of operations gave an exhaustive description of the day's proceedings, drawing attention to points with which he did not agree and stating what in his opinion ought to have been done.

At the conclusion of brigade, divisional and grand manoeuvres respectively, conferences attended by all officers were held, at which a narrative embracing the whole scheme was read out and final criticisms made by the director of operations.

Foreign officers were permitted to be present at the brigade and divisional conferences, but not at the final conference at which His Majesty the Emperor personally read out his criticisms.*

The most noticeable point in connection with these conferences was that the opportunity was taken by the director to express disapproval of the actions of senior officers in no unmeasured terms and to administer severe reprimands.

Although this occurred in the presence of hundreds of junior officers, it seemed to produce no bad result and is not considered to be subversive of discipline.

Conferences lasted as long as $1\frac{1}{2}$ to 2 hours; and it was observed that the majority of officers had ceased to pay much attention to what was being said long before their conclusion.

The main points in connexion with the criticisms made by General Count Oku, Chief of the General Staff, at the conclusion of the grand manoeuvres are as follows:—

- (a) The apportioning of spheres of operations to different units was not always suitable.
- (b) Owing to the northern army commander on November 6th merely ordering the concentration of his force and not clearly stating whether his object was offensive or defensive, the offensive spirit of the bodies under his command was diminished and the various commanders were at a loss to know how to carry out the orders suitably.
- (c) The General Officer Commanding 7th Division was blamed for ordering his division merely to occupy a position, without specifying that its object was the protection of the debouchment of the 2nd Division from a defile.
- (d) The marching power of both armies was praise-worthy.

* Field Marshal Lord Kitchener and his staff were present at this conference by special invitation.

- (e) The attack on the 7th November carried out by the northern army was developed rapidly and uniformly, and therefore met with approval. The decision of the northern army commander to attempt the capture of the enemy's position by a night attack, after the attack by day had failed, was concurred in.
- (f) The action of the northern army commander in ordering a pursuit as soon as he learnt of the enemy's retreat was suitable, but the specification of a certain line as the objective of the enemy's retreat, before its direction was clearly known, was found fault with.
- (g) On November 9th, the northern army commander attacked on too wide a front.
- (h) The course of offensive and defensive operations was too rapid, and incompatible with the conditions of actual war.
- (i) More attention must be paid in future to reconnaissance of ground, maintenance of control in close country and co-operation.
- (k) On the whole, the work done was satisfactory and the endurance of privation and hardship by all ranks was praiseworthy.

Compensation for damages. — Immediately on the conclusion of the grand manœuvres, claims for compensation on account of damage caused were submitted by claimants to the mayor or head man of their village or district.

If after investigation by that official it was found that the damage had been occasioned by onlookers, the claim was forwarded to and compensation given by the prefectural (county) authorities.

When it was proved to the satisfaction of the mayor or head man of the village that the damage had been caused by troops, notification was made to the Military Compensation Board, composed of—

1 Intendance officer.

1 mounted officer (of any branch of the service).

1 non-commissioned officer (military police).

The Chief of Police of the district in which the damage occurred.

This board then assembled, viewed the damage and if the claim or any part of it was allowed, awarded compensation from the funds of the manœuvre grant.

The damage occasioned by the troops during the grand manœuvres was exceptionally small, such as there was being principally caused by the crowd of civilian onlookers following the operations. Inhabitants are loath to submit claims for compensation and seldom do so, being only too pleased to see the troops and to let them make what use they like of their land.

Concentration for Manœuvres.—The 7th Division, consisting of about 9,000 officers and men, 1,200 horses and

24 guns was transported by sea from Hokkaido to the mainland to take part in the manœuvres.

On disembarkation the troops were entrained and taken south to the manœuvre area.

The voyage lasted 11 hours. Two government transports of 3,880 and 3,660 tons respectively, manned by officers and men of the Nippon Yusen Kaisha were employed, each making one trip a day, and carrying 50 officers, 1,000 rank and file, 150 horses, 8 guns and 4 wagons at a time.

Officers of the general staff directed the embarkation and disembarkation which was effected by means of large lighters. Officers of the transport corps were employed as railway staff officers to make all arrangements in connexion with rolling stock, entraining and detraining.

The disembarkation was carried out under peace conditions.

Billets.—By law troops can be billeted on the inhabitants anywhere and at any time, but care is taken by the military authorities to cause as little inconvenience to inhabitants as possible. Billeting was resorted to almost nightly during manœuvres, and it frequently happened that inhabitants received no previous warning that troops would be quartered upon them. At such times undoubted inconvenience was caused, but no annoyance was ever expressed. On the contrary, at all times civilians took the keenest delight in welcoming the troops and in entertaining them to the utmost limit of their resources. Troops carried their own supplies or drew them from supply depôts, consequently billeting was without subsistence.

Under such conditions lodging for 24 hours or one night is paid for at the rate of 4 sen* per non-commissioned officer or private and 6 sen* per officer.

For this sum, bedding, baths, tea and small cakes are provided as a matter of course by the inmates of the house in addition to lodging.

The strictest standing orders regarding behaviour of troops in billets exist, the most important being that that on no account whatever must a soldier be discourteous to his host or even make a complaint to him.

Such orders were however quite unnecessary, for the relations between civilians and soldiers were always of a most cordial nature.

The only dissatisfaction ever encountered during the manœuvres was exhibited by the inhabitants of a very poor district, from whom the troops, partly by orders, and partly as the outcome of kindly feeling, refused the hospitality extended to them. On this occasion the inhabitants were genuinely hurt. When troops are billeted in towns and villages, national flags are everywhere displayed; the civilians make it the occasion for a holiday and give themselves up to the entertainment of the men.

* 100 sen = 1 yen (2s. 0½d.).

The system of apportioning billets is the same as described in British F.S. Regulations, Part I. 1909, pages 63 and 64. It was much facilitated by the assistance given by the local authorities. The mayor and chief of police were always consulted. Every mayor is responsible for keeping a large scale map up to date showing the position of each house, with the number of inmates and rooms available.

Bivouacs.—Bivouacking was avoided if it were possible to obtain billeting accommodation.

It had however to be resorted to on a few occasions.

Each man carried a waterproof portable shelter tent. These can be laced together to form a tent of any size and shape. The type usually employed was made by lacing together 16 portable tents. When completed it had the appearance of an Indian general service tent, weight 160 lbs., and afforded accommodation to 16 men.

Tent poles were generally improvised on the spot.

Bivouacking is disliked by the men, but by regulations every man must have bivouacked at least once during manœuvres.

Ceremonial.—On the conclusion of the manœuvres, His Majesty drove along the line of troops, which was drawn up on one side of the main road from Uji-ye to Utsunomiya, and extended for a distance of 6 miles.

The troops were paraded as described in last year's manœvre report and presented a superb appearance.

The dressing was perfect, and the steadiness of the line remarkable. Civilians evinced the same marked interest in the troops as they have in previous years, and were present in thousands.

On the occasion of the Emperor's birthday on November 3rd, regiments were formed up in lines of battalions in quarter column, facing in the direction of Tokio.

Regimental commanders facing the same direction called out:—

“The regiment salutes the auspicious occasion of Your Majesty's Birthday.”

Regiments then presented arms, and the massed buglers sounded the Imperial Salute.

REMARKS.

Staff.—Staff work, including that of the regimental and battalion staffs, was uniformly excellent.

On divisional and brigade manœuvres, there were frequent changes of command and improvisations of staffs; this entailed junior officers taking over command of mixed bodies of troops or performing staff duties at a moment's notice. The only appreciable difference between the work of these temporary staff officers and the regular staff seemed to be that the former

were somewhat slower in writing and issuing orders, and at times made miscalculations where time and space had to be considered.

Officers dictated orders direct from the map, and corrections were never necessary.

The three Arms Combined.—General impressions gained are summed up as follows:—

- (1) The dislike of all ranks to a defensive attitude.
- (2) The constant desire to attack and the extent to which the offensive spirit is cultivated.
- (3) Close co-operation of artillery units.
- (4) The bold employment of machine guns in attack.
- (5) The comparatively small general reserve in defence, where a large force was employed in attack, the early employment of every available man in the fight and the rapidity with which it culminated.
- (6) The importance attached to concealment in defence; the disregard of it and contempt for the enemy's fire shown by men in attack, by scouts and patrols.
- (7) The pooriness of means of communication, owing to there being no system of visual signalling except semaphore (which was rarely used), necessitating the employment of large numbers of cavalry orderlies.
- (8) The tendency to employ cavalry as mounted infantry.
- (9) The frequency of a purely frontal attack, and when the latter was combined with an enveloping movement, the vigour and determination with which the advance was conducted in all parts of the field.

Night operations.—During the manœuvres there was a good deal of night marching, and occupation and preparation of defensive positions.

Night attacks, though arranged for on one occasion, were never carried out, most of the attacks being delivered at dawn when it was light enough for the artillery to render effectual support.

Strength of the general reserve.—The greater the size of the army, the less in proportion was that of the general reserve.

In grand manœuvres, the northern and southern armies on the 9th November at first retained 3 battalions and 6 battalions respectively in their general reserve out of a total strength of 3 divisions each; or $\frac{1}{3}$ and $\frac{1}{2}$ of the total infantry. This reserve was thrown into the fight at the outset, and it may definitely be stated that neither army during the engagement had any general reserve at all.

The idea seems to be that when large forces are employed, local reserves must be trusted to bring about a decision of the fight, by being successively thrown in till the enemy is crushed.

To employ a general reserve at the right time and place is not considered possible.

In the case of small forces, the usual strength of a general reserve was at least $\frac{1}{3}$ and sometimes $\frac{1}{2}$ of the total infantry.

This reserve was employed solely for purposes of counter-attack, launched as a rule from a flank.

Generally speaking, the Japanese system of counter-attack is that in the case of a force larger than two divisions it is carried out by a general advance of the defensive line fed by local reserves. With smaller forces the procedure is as described above.

Strength. Organization of reserve brigade.—Infantry regiments marched out to manœuvres about 1,600 strong.

Men of the 1st reserve (*yobi*) were called up for service during the manœuvres with certain regiments, notably the 4th and 29th, each of which received 360.

These were distributed among companies, 30 to each.

In addition, reservists of the 1st and 2nd (*yobi* and *kobi*) Reserves were called up for service during the grand manœuvres only and formed a brigade known as the 3rd Brigade of the 2nd (*kobi*) reserve.

This brigade consisted of 2 regiments, total strength 3,840 all ranks, of which 43 per cent. were 1st reserve men and 37 per cent. 2nd, the remainder being made up by men serving with the colours.

Only the brigade commander, 4 battalion commanders and 2 or 3 officers per company were reserve officers.

The reasons given for the employment of such a small proportion were that reserve officers are considered inefficient, and that their number was much under establishment.

Infantry.—*Formation of infantry in attack.*—Deployments were delayed as long as possible, and in open country took place at distances varying from 2,000 to 3,000 yards from the hostile position.

At long ranges the usual formation was lines of company columns advancing in fours, with intervals between companies sufficient to allow of an interval of 2 paces on extension.

Supports followed the firing line infantry at a distance of about 200 yards in similar formation. At a distance of about 1,000 yards from the enemy, the firing line extended to 2 paces, generally to the left, and continued the advance.

Supports extended on reaching the same point.

Reserves moving forward to reinforce the firing line adopted similar formations. The guiding principle appeared to be that close formations should be maintained as long as was consistent with not suffering undue loss.

Opening of fire in attack.—Fire as a rule was opened at about 1,000 yards range or as soon as extension was ordered.

Ammunition at this range was sparingly used for the following reasons:—

- (1) Fire delivered at any range over 600 yards is not considered to be effective.
- (2) If ammunition is not used sparingly at long and medium ranges, the troops will fall short of the amount necessary to bring about a successful issue at decisive ranges.

Fire discipline and nature of fire employed.—Fire discipline was good.

Orders issued by commanders were quickly taken up and passed along the line.

Men altered their sights by word of command, not at their own discretion.

The whistle was not used.

Volley firing was resorted to frequently. As a rule section volleys were employed when favourable targets presented themselves, but only at ranges of 1,000 yards or over and generally in defence.

Volleys are considered useful—

- (1) to steady the fire.
- (2) to ascertain the range.
- (3) to effect concentration of fire on a particular target.

Both in attack and defence the normal class of fire was slow independent, first opened at a range of about 1,000 yards by order of the company commander, who indicated the target and occasionally the number of rounds to be expended.

Rapid fire, of which the usual rate is about 8 rounds per minute, was opened at ranges of 500 yards and under and at longer distances when an exceptionally good target presented itself. At ranges of 325 yards and under, the fixed sight is used. At ranges over 325 yards the leaf of the backsight has to be raised and the slide adjusted.

Snap shooting and firing on the move were never observed.

Covering fire.—Covering fire was frequently furnished by machine guns and by portions of a firing line whilst the remainder moved forward. It was also employed by supports and reserves at times when ground favoured, but opportunities of doing so were very frequently neglected.

Judging distance.—Ranges were as a rule judged by eye in the attack; on rare occasions only were they supplied by the artillery.

Range finders were not used.

In defence, ranges to conspicuous objects were sometimes ascertained by pacing, but more generally from a large scale map.

Judging distance was on the whole very faulty.

Rushes in the attack.—Rushes were resorted to when the firing line had arrived at about 600 yards from the enemy.

Generally made by sections (50 men), and sometimes by as much as a company (150 men), the length of rushes was usually about 50 yards. The final charge to the assault of the position, however, was often as much as from 200 to 300 yards. It was noticed that the troops were invariably exhausted at the conclusion and could not have used their bayonets with full effect.

The Japanese maintain that the distance to be covered must depend on—

- (1) Configuration of the ground.
- (2) Strength of hostile fire.
- (3) The physical conditions of the troops.

The distance therefore must not be fixed, but should be as long as possible; if less than 30 or 40 yards little benefit results.

When an advance becomes more and more difficult, in order that there may not be a total cessation of fire, the skirmishing line must be divided into sections of about 50 men each and advances made alternately. The smaller the subdivisions, the slower the advance and the greater the difficulty of control; therefore subdivisions of less than a section should if possible be avoided.

Use of cover.—As a rule, full advantage was not taken of cover by infantry in the attack and occasionally also in the defence. At times a total disregard was shown of the enemy's fire.

Though taught to take cover, men are not checked for neglecting it, and it was obvious that great stress is not laid upon its importance in attack.

Company officers exposed themselves even more than the men, and never took advantage of cover to reorganize units if they happened to be out of hand.

The training of the Japanese soldier is directed towards teaching him how to die, not how to avoid dying; this is the reason why cover is neglected and its importance purposely underrated.

The Attack. General principles.—The main object of infantry once deployed for attack is to close with the enemy by the shortest route and in the quickest time. Consequently all attacks were carried out with extraordinary rapidity. Importance is, of course, attached to fire effect, but comparatively little firing except at close ranges took place, and in the majority of instances the assault was delivered before a fire superiority could have been obtained. The bayonet alone decided the issue, and one frequently saw the final bayonet charge delivered by a line as many as 9 men deep.

Infantry in defence.—The extent of frontage allotted to a company depended entirely on the extent of the field of fire and the importance of the locality.

As a rule, however, a company occupied 200 and a battalion 600 yards.

After preparing a position, troops destined to occupy the trenches were withdrawn about 100 yards and remained there until the enemy approached within approximately 1,000 yards. Observation posts in the trenches, on trees and on buildings were always arranged for.

Entrenchments.—There was no entrenching in the attack, though officers admitted on certain occasions that such would have been necessary.

In defence, either trenches were constructed or their position indicated by a string with white paper attached to it.

Positions being usually occupied by night, entrenchments had perforce to be constructed under cover of darkness and their siting and construction were on the whole satisfactory.

There was a tendency to choose a crest line or a line slightly in advance of the crest as the position, though on rare occasions a very forward position at the foot of the slope was selected.

Communicating trenches, head cover, overhead cover and obstacles were never actually made but when the latter (always *abattis*) were supposed to exist, their position was marked by a tape.

Trenches were not continuous and were mostly constructed to accommodate about one section (50 men).

Traverses at intervals of 15 yards were usually made.

For fire standing, the ordinary trench was 2 feet wide and $2\frac{1}{2}$ to 3 feet deep, with parapet 1 to $1\frac{1}{2}$ feet high and an elbow rest 9 inches broad.

Though this was the type of trench ordinarily excavated, company commanders in some cases widened the trench to 3 feet.

Trenches were concealed by hiding the forward slope of the parapet with grass, rushes, &c.

This type of trench was excavated in 50 minutes. Soil was easy, and light entrenching tools were mostly used.

Scouting.—Scouting was in general carried out by officer's patrols consisting of 1 officer and 2 or 3 men, and ordinary patrols consisting of 1 non-commissioned officer and 3 to 5 men. Patrolling by day was badly carried out, scouts and patrols taking little trouble to escape observation or avoid the enemy's patrols.

By night, however, the work was well performed, the men moving silently.

If particularly important information was required, officers patrols were invariably detailed for the purpose of acquiring it. Ruses by scouts to obtain information were rarely resorted to, but on one occasion 3 scouts were observed to have improvised rain coats made out of rice straw, which they put on over their uniform and slung rifle. Carrying sheaves of rice on their heads, they had the appearance of ordinary peasants. Disguised in this fashion they advanced, and moving very cleverly, reconnoitred slowly and thoroughly the enemy's

position, approaching to within 150 yards of it and returning without having excited any suspicion.

March characteristics.—The marching powers and endurance of the infantry called for universal comment and admiration from all who saw them.

The end of a thirty-mile march in heavy rain and over bad roads found them cheery and ready for any further call that might have been made.

Falling out and cases of sickness were exceptional and were confined chiefly to reservists.

The majority of casualties were due to sore feet, but it should be remembered that the reservists had only been called up 3 days prior to the commencement of the manœuvres and not only lacked practice in route marching, but had for the most part been issued with new boots.

The actual percentage of sick and of men who fell out during the manœuvres could not be ascertained, except in the case of the 59th Infantry Regiment, where from all causes it was, under 3 per cent. This may be taken as a fair average throughout the whole force.

The strictness with which march discipline was enforced varied perceptibly in different regiments, but it was on the whole good.

Men usually fell in and marched off by bugle, not by word of command.

Straggling and falling out without permission were very rarely seen.

In the majority of regiments men carried their rifles on one shoulder, changing arms by word of command at intervals of 10 minutes. On the "Halt" being sounded, a battalion at once halted, fixed bayonets, turned to the right, formed two deep, piled arms, took off equipment and then fell out clear of the road on the opposite side.

When tired, the men were ordered to sing war songs, which seemed to help them along considerably, though it caused a slight diminution in pace.

Besides the ordinary march formations of fours, file and single file, a formation of threes was adopted on narrow roads, which had the merit of leaving room for the passage of orderlies, vehicles, &c., without unduly prolonging the length of the column.

The rate of march was a shade under 3 miles per hour. When doubling, a pace of 5 miles an hour was maintained for as long a period as 40 minutes. Doubling for 20 minutes was of common occurrence and did not seem to distress the men.

Intrenching tools.—Each company carried on manœuvres 68 shovels, 11 picks, 4 axes, 3 saws.

It was stated that the number of tools carried by each company on mobilization is laid down as follows :—

Shovels	-	-	68
Picks	-	-	17
Axes	-	-	4
Saws	-	-	3
Wire cutters	-	-	6 (pattern not yet approved).

Cavalry.—The cavalry which took part in the grand manoeuvres consisted of 2 cavalry brigades and 5 regiments of divisional cavalry.

They were employed in three ways :—

- (1) As independent cavalry.
- (2) As divisional cavalry.
- (3) As orderlies.

Independent cavalry.—When so employed, they really carried out the duties of protective cavalry; the word “independent,” though used by the Japanese, is therefore somewhat misleading.

The cavalry brigades (augmented by two squadrons from each infantry division) never had as their object the defeat of the hostile cavalry. They were generally utilised to screen the movements of their respective armies, to gain information respecting the enemy and ground, and—during an action—to protect the flanks.

Concentration of all the cavalry or any part of it for purposes of offence was not observed, and it was rarely more than 8 miles in advance of the armies it was screening.

Information gained and reports furnished respecting ground were good and reliable, but those regarding the enemy's strength or dispositions were at times conflicting and proved untrustworthy.

Further, screens never sufficiently covered the flanks of an army. This led to the 2nd Division being surprised in a defile on the 6th November by a hostile brigade of infantry, whereby the whole course of events would and ought to have been changed. Blame in this case rested not only with the independent cavalry, but with the divisional cavalry as well.

Divisional cavalry.—Nominally of 3 squadrons of about 120 sabres each, the divisional cavalry in reality consisted of only one squadron, the remaining two being employed as part of the independent (really protective) cavalry.

To this one squadron fell the duties of assuring the safety of the division on the march, the maintenance of communication, and the supply of a large number of orderlies. In the two latter duties so many men were absorbed that the number employed with the advanced, rear and flank guards was small

and at times insufficient. To this cause the surprise of the 2nd Division on November 6th can partly be attributed.

The carrying and delivery of verbal reports and messages was well done. Specially instructed in this, the cavalry trooper gave proof of the excellence of his training. Mistakes were never made.

Tactics.—The country being much enclosed and in general unsuited to the action of this arm, comparatively little information was gained regarding cavalry tactics.

Shock action has been notable by its absence, even in the cavalry manœuvres held prior to the grand manœuvres. In the former, in the attack and defence of positions, dismounted action was often observed and the following points were noted:—

In attack,

- (1) The slowness with which the dismounted attack was carried out, due to the men being unaccustomed to fight on foot, and to their being much hampered by their swords.
- (2) Dismounted action being resorted to on occasions when opportunities for shock action presented themselves or when a quick mounted move would have been preferable.
- (3) The invariably frontal character of dismounted attacks.
- (4) Disregard of cover by men when advancing.
- (5) In dismounted attacks, the bold use of machine guns, which were usually pushed forward into the firing line and covered the advance from concealed positions.

Generally speaking, there was a tendency to employ cavalry as mounted infantry, with the result that both mounted and dismounted work was but indifferently carried out.

Mobility.—Owing to the enclosed nature of the country, it has been difficult to form a correct estimate of the mobility of the cavalry. An officer, however, who witnessed the cavalry manœuvres reports the movements as being slow and that opportunities were lost by hesitation where a bold offensive would have been successful.

Scouting and patrols.—Scouting was on the whole poor.

Patrols were frequently noticed moving in bunches, without taking any measures for their own protection.

Information and reports, particularly as regards ground, were generally good, but the methods by which the information was obtained were faulty and at times impossible. Little effort was made by scouts and patrols to conceal their movements or evade hostile patrols, and their total disregard of the enemy's fire when opened upon them at close range was most marked.

Officers' patrols of 1 officer and 8 to 12 men, and non-commissioned officers' patrols of 1 non-commissioned officer and 3 to 5 men, were usually employed.

On approaching and passing through villages, the men rode with drawn swords.

Personnel, Arms and Equipment.—The personnel is good. The officers and men are keen, intelligent, possess a good eye for country and are able to report intelligently.

The men were armed for the most part with the sword and old pattern carbine. The new cavalry carbine has not been generally issued as yet, and only a few non-commissioned officers carried it.

The chief differences between the old and the new pattern are:—

- (1) In the position of the safety bolt.
- (2) The addition to the new weapon of a bolt cover and of an attachment by which a bayonet can be fixed to the carbine.

The bayonet has not been definitely adopted by cavalry; but it is considered necessary, and the fitting of a bayonet attachment to the new carbine points to its adoption.

No changes in equipment were noticed.

Horsemanship and horsemastership.—The former shows an improvement, but the latter is still bad. During midday halts of over an hour's duration girths were not slackened nor saddles shifted or taken off. Men remained mounted for long periods when such was unnecessary.

Horses were fed twice a day and watering was not considered of much importance.

Artillery.—*Horse artillery.*—One battery of 4 guns formed part of each cavalry brigade. The present gun (2.95-in. Q.F.) was used for the first time this year and the detachments were supplied from the field artillery. The gun fires the same ammunition as the field artillery gun but has a lighter pattern of shield.

Batteries were well horsed, and the country-bred horses of the teams appeared up to their work. The guns may be somewhat heavy for horse artillery, but they were rapidly and smartly brought into action; their tactical handling approximated closely to that of field artillery, due no doubt to the personnel being supplied by the latter.

Both guns and the method of handling them are still in the experimental stage, and as a result of only a few day's observation, no definite conclusions as to their value can yet be formed.

The battery was kept intact when possible, but was split up as occasion demanded, for duty with advanced, rear and flank guards.

Field artillery.—Regiments* of field artillery marched out to manœuvres about 600 officers and men strong. Each battery

* A regiment of field artillery normally consists of six batteries of six guns each, but this organization was altered for manœuvres.—(General Staff.)

consisted of 4 guns, 2 ammunition wagons and 1 store wagon. The gun used was the 7.5 cm. (2.95-inch) Q.F. 38th year pattern. The horses are small and not up to the work required of them.

The pace seldom exceeded a walk, or a trot when coming into action under fire of hostile guns. Ground which would have presented no obstacle to the movements of British field artillery was considered impassable by Japanese battery commanders.

Tactics.—Field artillery not being equipped with instruments for laying out lines of fire, indirect laying is exceptional.

The opinion is generally held that the loss occasioned by the use of direct fire is more than compensated for by the gain in fire effect.

When indirect fire was used, the means of laying were not observed. Aiming posts are not used. It can however be confidently stated that indirect fire is not favoured, and that it will rarely, if ever, be used in future.

(a) *In attack*, batteries were invariably massed; though, sometimes for purposes of better concealment (to which much importance is attached), they were split up, never less than a section (2 guns) being detached to any point.

Batteries came into action in line or echelon and opened fire at about 3,000 yards from the hostile guns.

Initial positions taken up by batteries were as a rule occupied throughout an action. Changes of position are deprecated and are only considered justified when closer support of infantry is deemed necessary. On several occasions it was observed that batteries moved forward to support the infantry and came into action in the open within 600 yards (on one occasion 300 yards) of the enemy in position. It is only fair to add, however, that Japanese officers at the time stated that such would have been impossible in war. Batteries in action firing at 2,000 yards range have been noticed to advance and come into action at 1,200 yards from the enemy's position for no apparent reason. No greater fire effect could have resulted and more loss would have been occasioned, yet no reference was made to this point at conferences.

Gun teams and limbers, &c., usually sought cover in rear and to a flank of guns in action.

(b) *Defence.*—The main artillery position was usually about 600 yards in rear of the line held by the infantry, though occasionally the two coincided; the position is chosen with a view to obtaining the fullest fire effect possible, sweeping probable approaches and supporting the contemplated counter-attack.

Batteries were never seen to remain "in observation" or in reserve. Every available gun was brought into action at an early period of the engagement before the situation had developed.

Positions were usually occupied by night. On these occasions artillery commanders selected positions by reference to the map, but in addition either made a personal reconnaissance, or directed battalion or battery commanders to perform this duty. As a rule such positions proved to be the best obtainable.

Where natural cover existed, it was taken advantage of and supplemented; where none existed, cover for guns and personnel was constructed at the earliest opportunity. Alternative positions were also selected and cover provided. A favourite position for a battery, both in attack and defence, was one in a wood and about 6 yards from the edge of it, trees and branches being thinned slightly in front of each gun so as not to interfere with the lines of fire or sight.

The efforts made to conceal guns, however, were not always successful in the defence, and rarely so in the attack, the gun positions chosen being in some cases too obvious, and the cover carelessly constructed. The latter was, however, exceptional. The chief disadvantage under which the Japanese artillery labours is the bright flash caused by the powder used. Infinitely brighter than cordite, it invariably betrays the positions of the guns, no matter how carefully they may have been concealed.

Selected positions were occupied one hour before daylight without noise, delay or confusion.

Range finders were not used during grand manœuvres, ranges being taken from maps or judged by eye.

Signalling was rarely employed.

Observation posts for battery commanders were always employed. They were selected with a view to affording a favourable position for observing fire effect, controlling fire and following the course of the action.

Such posts were always connected by telephone with batteries, semaphore signalling being occasionally used as an auxiliary to the telephone.

Communications.—The means of communication used were telephones, orderly officers, orderlies and semaphore signalling.

As in previous years, an officer with an orderly invariably accompanied the head-quarters of a division or the commander of a mixed force, in order to send information and orders to the officers commanding the artillery.

The amount of wire carried by each battalion (3 batteries) was not ascertained, but appeared to be ample for all requirements. All batteries were connected by telephone with each other, with the observation posts and with the battalion commander, the latter being again connected with the officer commanding the artillery.

Information during an infantry attack was occasionally supplied by the infantry, company officers sending back men with information. The messengers doubled the whole distance and informed the nearest artillery unit.

Artillery officers rarely accompanied the infantry advance and chains of infantry orderlies, except on one occasion, were not observed.

Mountain artillery.—One battalion composed of 2 batteries of 6 guns each was employed on manœuvres. The gun is the old 30th year pattern 2·95-inch Q.F.

Though the manœuvres took place in country suitable to the employment of mountain artillery, no advantage was taken of the fact. Invariably moving with the main body of a column, it usually came into action very late, and when it could most usefully have formed part of advanced, rear or flank guards it was not so employed.

In action however, it compared very favourably with field artillery; limbering up and unlimbering were quickly and smartly performed.

The tactical handling was the same as that of field artillery with the exception that in no instance did it change position and advance to render attacking infantry closer support.

Batteries came into action at about 1,500 to 2,000 yards range, and their position, if not betrayed by the flash which is very brilliant, was indicated by the report, which is much sharper than that of the field gun.

Part of the equipment of mountain guns is a light shaft, which is usually employed on level ground instead of loading the guns on pack horses.

Heavy artillery.—Heavy artillery took part only in manœuvres of the Guard Division held on the 18th and 19th November, 1 battalion (2 batteries) being employed.

One battery was composed of 15-cm. (5·8-in.), and the other of 12-cm. (4·7-in.) howitzers.

The normal composition of a heavy battery is 4 guns, 1 observation wagon, 4 ammunition wagons in the ammunition section, 1 spare stores wagon and 4 or 6 first line ammunition wagons. On manœuvres, however, only 2 ammunition wagons were supplied per battery.

The battery horses are sturdy, but undersized and unsuitable for the work.

The usual pace of heavy artillery is 3 miles an hour at a walk, and on occasions it trots into action over short distances.

Fire from concealed positions was invariably used, necessitating the employment of indirect fire.

The line of fire was laid out by means of the goniometer or director, or by laying on an aiming point and deflecting the gun to bring it on to the target. Both in attack and defence batteries occupied positions in mass about 500 to 1,500 yards in rear of the main artillery position and were centrally placed as regards the general front.

Guns came into action at ranges varying from 2,000 to 5,000 yards.

Artillery officers consider that the most effective range for heavy artillery is from 3,000 to 5,000 yards, though the range limit is considerably greater. Consequently, positions were selected too far in advance and were usually detected.

Heavy artillery generally commenced an engagement, but though it is laid down in the training manual for this branch of the service that the primary duty of heavy guns is to search out and overwhelm the artillery opposed to it, fire was frequently opened against small bodies of infantry in the earliest stages of an engagement.

Dispersion of heavy artillery by batteries or sections was not employed, nor were changes of positions ever carried out.

Night firing was never attempted.

Observation posts were usually in the general line of the main artillery position and connected with the battery by telephone.

The battery commander observed and controlled the fire from the observation post and the senior officer with the battery superintended the fire discipline.

Observation is generally carried out from the roof of a house or a high tree.

The system of occupation of a position by field artillery by night is followed also by heavy artillery, but the latter in addition to reconnaissance and occupation has to select an observation post and connect it with the gun line by aerial cable.

The distance between the guns and the observation post is at times as much as 1,500 yards, but on all occasions communication was rapidly established and successfully maintained, both prior to and during an engagement.

Considerable use is made of officers' patrols sent forward from batteries to accompany infantry and gain information of the strength and distribution of the hostile artillery, or to observe and report on effect of fire.

Telephones were the chief means of communication. Each battery on manœuvres was equipped with 6,000 yards of light cable, on reels holding 1,000 yards each; also 6 light and portable dry cell telephones.

The aluminium reels are strapped to a man's waist and can be paid out at a trot or walk on horseback or on foot. A second man follows behind, clearing the cable off roads or paths and fastening it up to poles, houses, branches of trees, &c.

Machine Guns.—Machine gun batteries of 8 guns, split up into 2 sub-divisions of 4 guns, further subdivided into 2 sections each, formed part of each cavalry brigade. The gun is the same as the infantry machine gun. A feature of the cavalry manœuvres was the great use made of these weapons.

A bold employment in support of dismounted attacks, co-operation on most occasions with the horse artillery, and the

care taken to obtain concealment, were the most noticeable points in connexion with them.

Greater stress seems to have been laid on the value and importance of machine guns this year than would appear to have been the case in the past.

Batteries have in some infantry regiments been organized on a war footing, and a departure from the usual custom of allowing regimental commanders to have at all times complete control over their own machine guns has been observed.

It is stated that the present organization of batteries as detailed below, and their tactical employment, are still in the experimental stage, but various indications seem to point to a definite decision having been arrived at regarding both.

The organization of an infantry machine gun battery on war footing.—A battery consists of 6 guns divided into 3 sections of 2 guns each, mounted on tripods. The rear leg of the tripod is jointed, and has a saddle on which the firer sits. Guns, tripods and ammunition are all carried on pack horses. The battery and one section is commanded by a captain who is mounted, the remaining two sections by subaltern officers, unmounted.

Each gun detachment consists of 1 non-commissioned officer and 6 men. One warrant officer commands the 2nd line ammunition section. The gun is fed with ammunition in brass clips containing 30 rounds. 19 clips are packed in one box, and each ammunition horse carries 4 boxes, 2 on either side.

Each pack horse is led by one man.

The men of the battery carry a bayonet, but no rifle or pack.

Strength of a machine gun battery: officers, men and horses.

Officers	-	-	3	
Warrant officers	-	-	1	
Gun detachments	-	-	42	(1 non-commissioned officer and 6 men per gun).
Leaders of horses carrying guns and tripods	-	-	6	
Horse leaders 1st line ammunition section	-	-	6	(1 to each horse).
Horse leaders 2nd line ammunition section	-	-	6	(1 to each horse).
Leader of spare horse	-	-	1	
Leader of horse carrying spare parts	-	-	1	
2nd line ammunition carriers	-	-	23	(3 non-commissioned officers, and 20 men).
Army medical department	-	-	1	private.

Total - - - 90 officers and men.

Horses.	For guns and tripods	-	6
"	1st line ammunition	-	6
"	2nd line ammunition	-	6
"	Battery commander	-	1
"	Spare horse	-	1
"	Spare parts horse	-	1
<hr/>			
Total	-	-	21 horses.

Ammunition.—48 boxes (570 rounds per box). Total 27,360 rounds.

Tactics.—In some divisions, regimental commanders have had entire control of their own batteries, but in others there has been a tendency on the part of divisional and brigade commanders to keep the batteries of regiments in their command under their immediate orders, and in divisional and brigade operations to issue special instructions for their employment.

As a rule, batteries have advanced with the firing line in the attack as far as the final fire position, the guns being carried by hand from position to position. Either the gun and tripod were lifted together bodily and carried by three men, or each was carried separately by a single man.

They have also been employed in:—

- (1) Taking up a position on a flank, from which oblique fire could be brought to bear on the point of assault.
- (2) Occupying high ground in rear, from which covering fire could be employed.

In nine cases out of ten, however, they moved with the firing line.

Lieutenant-General Uéhara, Commanding the 7th Division, expressed his views on the employment of machine guns in the attack as follows:—

“In my opinion the guns should be employed to bring a severe fire to bear on the enemy in the last stage of an attack.

“For this purpose guns should be employed on the flanks in order that their fire may be as far as possible enfilading; but it is too risky to place them on the extreme flank, and there should be some infantry beyond them. Officers commanding companies on a flank should always be ready to prolong a line beyond machine guns if there is any risk of their being isolated.

“Naturally the best position is afforded when rising ground on the flank of the attack offers an opportunity

- “ for machine guns to support the infantry advance by
- “ flanking fire. Opportunities may also occur for doing
- “ so from the rear; but officers in charge of machine
- “ guns must not keep their guns in such positions too
- “ long, as the range may become extreme, or their fire
- “ masked in the last stage of the attack.
- “ The main thing is to have the close support of the
- “ machine guns at the decisive moment and there should
- “ be no hesitation in coming right up into the firing line
- “ when occasion demands.
- “ When an attack is ordered, the officer commanding
- “ the battery should gallop forward and carefully recon-
- “ noitre the line of advance, selecting the positions to
- “ occupy in the attack. For what else is he mounted?”

These opinions of General Uéhara are shared by all officers with whom the matter has been discussed and the tactical handling of machine guns in attack during the manoeuvres has been in accordance with this teaching, with the exception that positions on a flank have been somewhat exceptional.

Machine guns rarely came into action at ranges over 1,000 yards and as a rule batteries were not split up. On the occasions when they were, subdivisions of less than a section (2 guns) were never used. They are, in fact, forbidden.

Great importance is attached to concealment of guns in the defence, and it was not uncommon for subdivisions of batteries to be made in order to take the fullest advantage of natural existing cover.

When none existed, entrenchments were made, usually in the same line as those held by the infantry. Such positions were not occupied, however, until the enemy had approached to within about 700 yards. The guns were then hurried forward and as heavy a fire as possible was opened. Thus, it is claimed, an element of surprise will be introduced which will go far towards throwing the enemy into confusion.

Gun positions were selected with a view to utilizing natural cover, sweeping probable approaches and assisting the counter-attack which is always kept in view. The form in which assistance is given to the last-named is by holding a certain extent of the position with guns alone, thus enabling a large number of infantry to swell the numbers of the general reserve with which the counter-attack is to be made.

Points noticed in connexion with the gun.

(1) The frequency of jams.

A jam occurred usually before the 20th round and was generally due to defective construction of a cartridge or a “fault in feed.”

- (2) The brilliancy of the flash on discharge, by which positions were invariably betrayed.
- (3) The rapid heating of the barrel.

(This is apparently due to the use of a special muzzle attachment, fixed on the muzzle when blank cartridge is fired. The attachment is for the purpose of preventing the full escape of gas, thereby imparting to the recoiling portion of the gun the same amount of recoil as would be produced by the firing of ball cartridge.)

The blank cartridge used has a wooden bullet which breaks up and is consumed in the barrel. This is probably the cause of the abnormal flame or flash noticed.

The firing of blank cartridges is said to be so injurious to the barrel that the construction of special machine guns for manoeuvre purposes is now under serious consideration.

There is no intention of increasing the number of machine guns per regiment from 6 to 18 as was mentioned in last year's report.

A machine gun requires little cover for its concealment, especially when firing from its lowest position, about 1 foot 6 inches from the ground; but owing to the difficulty generally experienced in attack, of finding sufficient cover for the gun detachment, its position is, as a rule, easy to locate. No fixed pattern of entrenchment for guns and their detachments has been observed. A shallow trench about 4 feet square and 1 foot deep with the earth thrown up in front to a height of about 9 inches has been the usual pattern.

Range finders were not used. A range finder of French design and make is said to be employed occasionally, but it was not seen or used during the manoeuvres.

Engineers.—Engineers were chiefly employed in assisting in the preparation of positions for defence, constructing and repairing roads, and laying lines of telephone. A few were sometimes detailed to accompany infantry in the attack when it was assumed that the enemy had constructed obstacles.

An officer with an orderly invariably accompanied general officers commanding divisions and brigades, and commanders of mixed forces, and he was frequently ordered to carry out reconnaissance of positions and assist artillery commanders in the selection of artillery positions.

Wireless Telegraphy and Balloons.—The former was not used.

One balloon of the pattern described in "The Handbook of the Japanese Army" was employed. It was considered neutral and was throughout the manoeuvres at the disposal of the Director of Manoeuvres, who by its means issued signals, such

as "Commence operations," "Troops stand fast for orders" and "Operations concluded."

Medical Service.—There were no organized field medical units on manoeuvres, though their existence was assumed.

Great attention was paid to sanitation and hygiene. Dysentery was prevalent at some places, in consequence of which orders were issued that no vegetables and drink were to be bought, while bedding supplied by inhabitants in billets was not to be used.

Medical officers invariably reported to regimental and battalion commanders on the state of health of every place in which troops were billeted.

Every house was carefully inspected and cleaned, urinals cleansed and disinfected before the arrival of the troops, all water boiled before use, and any house in which there had been an infectious disease given a distinguishing mark.

Transport.—Second line transport was all civilian, the horses of transport battalions being all utilized for 1st line transport and as chargers for mounted officers of the reserve regiments.

By law, transport can be requisitioned, but in practice this is seldom resorted to.

The cost of hire for a man, horse and vehicle (four-wheeled) was 2 yen (2s. 1d.) per diem. Before hiring, the value of every horse was settled, and in case of permanent disablement this amount was paid as compensation.

Cast horses were not replaced unless necessary, in which case fresh horses were hired in the immediate locality. Two officers only of the transport corps were detailed for duty with the 2nd line transport.

First line transport of an infantry battalion consisted of 4 pack horses. Two carried entrenching tools, one hospital panniers, and one stretchers, all being led by men furnished by a transport battalion.

These horses were well up to their work, and 1st line transport was good; 2nd line transport however proved unsatisfactory. The horses were too light for the work, wagons were overloaded, and breakdowns consequently frequent.

Civilians employed with this transport worked hard, and there were no cases of insubordination or infringement of regulations on their part.

CONCLUSION.

The most striking characteristic of the Japanese Army is that officers and men are one and all imbued with the idea that in peace manoeuvres as in war, they have only to be launched to the attack to be victorious.

A spirit of aggression, and determination to win has shown itself on every occasion and indicates the continued presence of that well-nigh irresistible driving power which has brought such success in the past.

There has been much hardship during the manoeuvres, and the powers of endurance of all ranks have been severely tested. Officers and men have stood the test in a manner which excited the admiration of all onlookers, and shows clearly that the *moral* of the Army has in no way deteriorated from its high standard.

RUSSIA.

The manœuvres in the St. Petersburg Military District took place from the 22nd to the 25th August in the area of country immediately to the south-west and to the west of Gatchina.

STRENGTH AND COMPOSITION OF THE OPPOSING FORCES.

Red Force.

Commander.—Lieut.-General Nikitin.

Chief of Staff.—Major-General Lovtsov.

Combined Division (Lieut.-General Lesh).—Three Guard Rifle battalions and 50th Reserve Infantry brigade.

22nd Division (Lieut.-General Olokhov).

24th Division (Lieut.-General Shvank).

Brigade from the 3rd Guard Division from Warsaw (Major-General Resin).

1st Guard Cavalry Division (Lieut.-General Krusenshtern).

Total.—51 battalions, 25 squadrons, 12 field batteries, 2 horse batteries, cable section of a telegraph company. Approximate strength in the ranks 17,000 men.

Blue Force.

Commander.—Lieut.-General Danilov.

Chief of Staff.—Major-General Morits.

1st Guard Division (Lieut.-General Mrozovski).

2nd Guard Division (Lieut.-General Mikhnevich).

2nd Guard Cavalry Division (Lieut.-General Bezobrazov).

Total.—32 battalions, 30 squadrons, 6 field batteries, 2 horse batteries, cable section of a telegraph company. Approximate strength in the ranks 12,000 men.

COUNTRY.

The country is generally level and so extensively covered with forest that the whole operations practically resulted in wood fighting. On the first day only was any considerable force of infantry seen to advance over open ground. The occasional intervening spaces between the woods were largely covered with standing crops and no extended view was obtainable from any point. Owing to the marshy ground, the woods were generally not passable for artillery; the cavalry could only penetrate them with difficulty, and even the infantry were frequently knee-deep in bog. The *chaussées* were the only

roads suitable for transport. The difficult country naturally impeded the combined action of the three arms and also made it impossible for spectators to see anything more than small isolated combats. The work of the cavalry could not be observed, nor the combination of any number of guns. Sufficient only could be seen to establish the fact that the principles of training as sketched in last year's report are adhered to.

NATURE OF THE OPERATIONS.

According to the general idea, the Red invaders are supposed to have landed two corps in Finland. Another Red corps (the 22nd and Combined Divisions under General Nikitin) has landed near Narva, on the southern coast of the Gulf of Finland, and is advancing on St. Petersburg to draw a portion of the Blue defenders south.

The main southern Red army, after operations in the Vilna district, is supposed to be advancing along the Warsaw-St. Petersburg line of railway and to have sent a strong detachment (the 24th division and the Combined Guard Brigade under Genl. Shvank) to help the troops from Narva.

The Blue defenders, to whom the defence of the capital is entrusted, are operating against the hostile troops in Finland, but have sent the Guard Corps to act vigorously against the groups of the enemy that are south of the Gulf until the operations to the north of the Gulf can be completed.

On the first day of operations, the two Red detachments, under Generals Shvank and Nikitin, moved respectively N. and E., thus diminishing the distance which separated them. General Shvank occupied a somewhat extended position across the Warsaw *chaussée*, where he was attacked on the 23rd by Blue.

The latter advanced from Gatchina in two columns, each of the strength of a division, covering the advance by a reconnaissance in force of 4 battalions from each column. General Shvank was forced to retire, but learning on the 24th that General Nikitin's troops had covered another 15 miles eastward, he advanced again on that day.

Blue advanced simultaneously, this time in four columns, covering a front of 8 miles. Owing to the nature of the forest country and to incorrect information, the two flank columns arrived too late in rear of Red to take part in the day's fighting, during which Red drove back the two centre Blue columns, and regained the ground previously lost. To represent the losses incurred by Blue, one of its brigades was transferred to Red. General Shvank thereupon made a flank march west, and joined hands with General Nikitin 17 miles S.W. of Gatchina.

An indecisive cavalry action took place on the 25th. On the 26th, Blue was informed that he was being reinforced by a division (imaginary) from St. Petersburg, but the manœuvres were suspended before the opposing forces again engaged.

METHOD OF CONDUCTING MANŒUVRES.

The method of conducting the manœuvres was similar to that employed last year. The manœuvres were to have been continuous for five days, with the exception of an occasional stand-fast to enable the umpires to communicate their decisions. However, on the evening of the 23rd, as the troops had been marching and fighting the whole day and as their positions had become extremely complicated in the marshy forest, where it would have been difficult to bivouac, the Emperor ordered a cessation of hostilities till 7 a.m. on the 24th. As has been seen, the operations actually ceased at the end of the fourth day.

The task given to the Blue commander was an exceedingly difficult one, and the system of reinforcing him by additional troops to those awarded him in the first instance had to be resorted to. This somewhat impaired the interest in the tactical problem, and the nature of the country rendered the manœuvres in other respects singularly uninteresting for the spectator.

The partial participation of reservists in these manœuvres had been intended, and this would have been a matter of special interest, owing to the fact that reservists have not been called out since the war. Unfortunately, the order had to be countermanded in the St. Petersburg district for fear of spreading the cholera.

REMARKS.

Staff.—The following points in the higher leading deserve notice :—

- (1) General Danilov's reconnaissance in force with 8 battalions on the first day would have been costly. It was quite distinct from his attack, and therefore his troops, which eventually formed his frontal or holding attack, had to recross the same ground, again incurring heavy losses.
- (2) If the original front taken up on the first day by General Shvank may be granted to be slightly over-extended for his force, that eventually adopted was decidedly too narrow and rendered it easy for the enemy to envelop his flanks. Similarly, the restricted front on which he advanced on the second day again enabled a very considerable portion of the enemy to pass his flank unseen.
- (3) General Danilov's bold method of sending strong detachments round the enemy's flanks was a contrast to what was observed last year, when no attempt to turn or entirely envelop a flank was made, but it must be remembered that in last year's scheme General Danilov was on the defensive. It is a question whether these detachments were not overdone on

the second day in a country where intercommunication was so difficult. Certainly, for the entire day 12 out of his 32 battalions were beyond his control, and during that period he was numerically weaker than the enemy at the point of contact.

- (4) In order to concentrate his force, General Nikitin left the *chaussée* and plunged his corps into the forest in a march due east. This rendered his progress extremely slow and favoured the Blue commander whose aim was to gain time. If he could have considered that General Shvank with his 3^d brigades was sufficiently strong to avoid a decisive defeat by General Danilov's 4 brigades and had advanced rapidly with his entire corps by the main road on the capital, he would have rendered the Blue commander's task still more difficult. As it was, he did not get his corps into touch with the enemy until the fourth day, which seems under any circumstances unaccountably slow.

Infantry.—Discipline was good, and the men remained fit and fresh throughout the manœuvres. The advance made in the training of the smaller units down to groups has been commented on in last year's report, and this year it was confirmed by the troops maintaining good direction and touch whilst continually working through extensive woods. The practice of invariably extending to about 3 paces when there was a chance of coming under fire, of advancing by rushes of from 40 to 50 yards with small units and frequently man by man, and of concealing the troops as much as possible, was adhered to. Fire in the attack is not carried out whilst the attackers are in movement. In the attack it is permitted to open fire at 2,000 paces distance. It is held that fire during the advance helps to keep the men's attention occupied and thus to render them steadier. The use of rapid fire was not observed. Volley firing was still, but only very occasionally, employed.

The Maxim guns of the infantry were not massed or used for covering fire, but worked with their regiments and were advanced as close up to the firing line as was possible. Large rattles were used to indicate their fire, but these could not be heard at any distance. The use of entrenchments for machine guns was not observed, but they are provided for in the regulations, and non-commissioned officers are instructed therein. Distances are generally estimated by eye, but the "Souchier" telemeter is also supplied.

Cavalry.—The opposing cavalry divisions were employed somewhat further afiel from the other arms and more independently than was the case last year. In the mounted cavalry fight on the second day the squadrons traversed some difficult ground in a creditable manner. As the fight was declared

indecisive, the opposing divisions more or less cancelled one another, and their further effect on the tactics of the other arms was without interest.

The question of machine guns with the cavalry is not finally decided. The Rexer guns now in possession are to be retained, but the Maxim is to be the principal machine gun. It is not yet determined whether the Maxim detachments are to be trained and employed regimentally or divisionally, and, whilst the guns now in possession are deemed sufficient for peace training, the new guns for the detachments are for the time being kept in store. There is little doubt that the low-wheeled truck alluded to in last year's report will be adopted for their carriage. Though the Russian cavalry are constantly employed dismounted, no systematic attack of a position by dismounted men, such as is contemplated in the new German regulations, is practised.

Artillery.—During these manœuvres no instance of artillery firing over sights was observed. It is claimed that the artillery can now make better practice from concealed than from open positions. It is also claimed that moving targets can be successfully engaged from wholly concealed positions. One is led to the conclusion that the Russian artillery will invariably employ, whenever possible, concealed positions except in the close support of the final assault or when horse artillery are engaging hostile cavalry.

Medical Services.—A one-horsed two-wheeled ambulance wagon was under trial. It will accommodate 2 men lying down or 8 men sitting. The shape of the body resembles that of a four-wheeled ambulance, but is smaller and lighter. Its adoption is not decided on, but in any event it is not proposed for use in Western European warfare where good roads are available.

Telephones.—In the St. Petersburg District the scale for telephone equipment is as follows:—For staffs of infantry corps or divisions, 10 miles of wire (15 drums), one instrument for central station and 5 for other stations, a box of reserve parts, and 5 metal props. For each infantry regiment and rifle regiment or battalion, 5.3 miles of wire (8 drums), and stores as above. For telephones with artillery, *see* Manœuvre Report, 1907.

Cyclists.—The cyclists (8 per regiment) were formed into cycle companies for reconnaissance. In spite of the bad Russian roads, officers claimed that they could thus perform useful work.

SWEDEN.

The manœuvres of the 5th and 6th Divisions took place in Norrland between the 21st and 25th September, and are the first that have been held so far to the north of Sweden.

STRENGTH AND COMPOSITION OF THE OPPOSING FORCES.

Red Force.

6th Division (Major-General Wikander).

11th Infantry Brigade.

12th Infantry Brigade.

23rd Jämtlands Fältjägar Regiment (3 battalions). 28th Västernorrlands Regiment (3 battalions).	19th Norrbottens Regiment (3 battalions). 20th Västerbottens Regiment (3 battalions).
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Cavalry.

8th Norrlands Dragoons (3 squadrons).

Artillery.

9th Position Artillery Regiment (1 battery of 6 machine guns).	4th Norrlands Artillery Regiment. —1st "Division" (3 batteries of 4 guns); —2nd "Division" (3 batteries of 4 guns).
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Engineers.

2 bridging companies.	1 field company.
Amounting to a force of about 8,000 men.	

Blue Force.

5th Division (Major-General von Platen).

Infantry.

22nd Värmlands Regiment (3 battalions).	14th Hälsinge Regiment (3 battalions).	13th Dal Regiment (3 battalions).
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Cavalry.

2nd Life Dragoons (2 squadrons).

Artillery.

9th Position Artillery Regiment • 5 Upplands Artillery Regiment
(1 battery of 6 machine guns) (4 batteries of 4 guns).

Engineers.

1 balloon company. 1 bridging company. 1 field company.

Amounting to a force of about 6,000 men.

COUNTRY.

The country consists mainly of forest, with patches of cultivated land. The forest country is intersected by bogs and streams and is impassable by cavalry, except for small patrols which might follow the forest paths. The hills rise to about 1,000 feet above the rivers, and the country, where not cultivated, is undulating and broken up by small woods and streams. The fields are bounded by wooden railings which, though easily destroyed, are sufficient, as a rule, to confine cavalry and artillery to the roads. The ground in the forest is very rough owing to rocks, stumps of trees, and swamps.

The general effect of the country on the manœuvres is shown by the fact that after $3\frac{1}{2}$ days of fighting the Blue, which was the weaker and defending side, had only been driven back a distance of about $1\frac{3}{4}$ miles.

The Angerman Elf,* north of its junction with the Fax Elf, is a formidable obstacle, being more than 100 yards wide and having a current of about $4\frac{1}{2}$ miles per hour. The Fax Elf is less formidable, being only about 75 yards across, and with a current, in places, of not more than 2 to 3 miles an hour.

NATURE OF THE OPERATIONS.

The general idea governing the manœuvres was that a Northern Power was attacking a Southern Power whose northern boundary was the Angerman Elf. The Northern Power had divided its forces, a portion being supposed to have landed on the Baltic coast near Sundsvall (south-east of the manœuvre area).

The Red force represented a detachment of the Northern Power, advancing in a south-westerly direction in order to co-operate with the force landed near Sundsvall in attacking Östersund (south-west of the manœuvre area).

The Blue represented a force, detached from the main southern army, whose mission was to delay the Red on the Angerman Elf and thus to prevent the junction of the two northern forces.

The manœuvres were practically confined to the open ground round Langsele and on the other side of the river south

* Elf = river.

and south-east of that place. The general nature of the operations was similar each day. Red took up a position facing approximately west-north-west, with both flanks resting on forest. Blue attacked weakly in front across the open ground, and in greater strength on the flanks by making a turning movement through the forest. Red replied by making counter attacks, also through the forest. Blue fought with a river running through his front and had the advantage of a bridge behind him, which enabled him to transfer his forces from one bank to the other. Red was on several occasions much delayed in making his attack by finding that Blue had altered the disposition of his forces during the night. Red had then to transfer his troops from one bank to the other, either by marching them several miles to the rear and crossing by a pontoon bridge which he had had constructed, or else by making rafts and utilizing such boats as he could find on the spot.

There were no night attacks, though the operations were continuous throughout the manœuvre period. The fogs which occurred each night and did not clear away until about 11 a.m. next morning probably accounted for this. Another effect of the fogs was that the attacking troops frequently found, when the fog lifted, that they were only a few yards from their opponents.

Umpiring.—The umpiring appeared to be well done. Umpires were always on the spot when required, and their decisions were never questioned. There were 38 umpires, which seems a large number in proportion to the troops engaged, viz., 14,000. The necessity for a large staff of umpires was probably due to the difficulty of umpiring in forest country.

REMARKS.

Infantry.—The infantry are formed of excellent material and, like all Swedish soldiers, take their profession very seriously. They maintained silence, as a rule, both on the march and when formed up, but they appeared quite cheerful and interested in all that was taking place. The march discipline was excellent, and there was no straggling. Each man carried a knapsack, spade, portion of a tent, and a cloak on his back, making a weight of 18 kgs. (39·6 lbs.). With his rifle and 100 rounds of ammunition an infantry soldier would carry altogether 26 kgs. (57 lbs.). For the manœuvres the companies were about 100 strong and were made up, almost entirely, of men who had been called up for their second and third year of training.

Forty men of the *Landstorm* took part in the manœuvres as volunteers. They were kept together as one company and presented rather a motley appearance, as the State only provides them with coats, hats and equipment. The King addressed them and commended them for their zeal in attending manœuvres.

Infantry were never extended, at more than 1 to 2 paces interval either in attack or defence. The continual marching through the forest possibly contributed towards close formations, as it was necessary to avoid extension in order to maintain direction. Bayonets were fixed when marching through forest, and, if an enemy was encountered, the troops charged immediately. Direction was kept by compass, and the rate of marching was very fast.

The men used their spades continually, but did not construct elaborate entrenchments. In defending a position they fortified the forward slopes; the usual types of entrenchment being either trenches about 2 feet wide and 2 feet deep, or else shelters for single men lying down, about 6 inches deep with a parapet about 1 foot high. During the attack the infantry occasionally entrenched whilst lying down.

Independent firing was the rule. Officers did not move up and down their companies during the attack nor did they use their whistles. There was little control of fire, and the men seemed careless about setting their sights, though orders on the subject were occasionally passed down the ranks by the officers.

Both in attack and defence the infantry were formed in two lines only, viz., a firing line and a reserve. The firing line was, however, often subdivided into 2 or 3 lines which followed one another at intervals of 50 to 100 yards. There was never any attempt at building up a firing line before delivering the assault. The infantry usually advanced by sections in short rushes of about 50 yards.

During the attack the rear lines fired over the head of those in front, even when advancing over level ground.

The infantry rifle has a fixed sight up to 300 yards. With blank ammunition it fires a wooden bullet which is supposed to break up at the muzzle. It does not always do so, however, and on one occasion a man was wounded in the leg at a few yards range by one of these bullets.

Occasionally the smoke of rifles and guns was very visible. This may have been due to atmospheric conditions; Swedish officers said that it only occurred when the rifle or gun was cold.

The infantry was seen at its best when crossing a river. Many of the men were expert woodmen and quickly collected logs floating down the stream. With these they made rafts, sometimes even tying the logs together with the straps belonging to their equipment. The rafts, when completed, were poled across the river. Nothing of the nature of a flying bridge was seen in use.

Cavalry.—There were only 3 squadrons of cavalry on the Red side and 2 squadrons with the Blue. The strength of a squadron was 125 men. As already mentioned, the country was not in any way adapted to cavalry action.

The horses appeared admirably trained, and the men rode well. The cavalry is accustomed to make great use of dismounted action. The men were armed with a sword and a Mauser carbine which was carried slung across the back. Each man carried 50 rounds of ammunition, and each squadron had a pack-horse which carried 2,560 additional rounds. (Total about 20 rounds per carbine.)

The saddle has capacious wallets and wooden panels covered with thick numnah, and rests on a substantial blanket.

There was a light bridging section with the Blue cavalry, but no bridge was built. The Red cavalry had no bridging section, but on one occasion a squadron crossed the Angerman Elf, the men making the passage, with their saddlery, in boats and the horses swimming alongside.

Artillery.—No horse artillery or howitzer batteries took part in the manœuvres. All the field artillery were armed with the Krupp 7-c.m. gun. Batteries were made up for the manœuvres to 4 guns and 6 wagons.

A goniometric sight was used, the base-plate of which is mounted on an arc sight and not on the shield. The latter consequently interferes with the view to the front; it is, therefore, hinged about 6 inches from the top so that it can be lowered when using the goniometric sight.

Aiming posts are not carried. The director and the goniometric sight both have their base plates graduated to 64, but the reason for this could not be ascertained. The director has projecting arms so that it can be used behind cover. It has also prismatic binoculars with graticuled object glasses.*

Indirect fire was usually employed, but batteries were careless in availing themselves of cover, guns being frequently placed in positions where the flash betrayed their whereabouts. This was particularly noticeable when they occupied the forward edges of woods, as they frequently did. Entrenchments were rarely constructed; the only ones observed were most elaborate, planks were placed under the gun wheels, and a trench was dug for the spade, the rear of the trench being revetted with large stones; this did not appear a very practical expedient, and it seems probable that these emplacements were only made for show. In the above case the guns were only 5 or 6 yards apart, and it was noticeable throughout the manœuvres that guns were frequently in action at half interval. On several occasions artillery came into action on roads, and in such cases the precaution was taken of breaking the hard outlines of the shields with boughs of trees.

Batteries were occasionally brought up to within 800 yards of an enemy's position in support of an infantry attack.

* The instrument is apparently the same as the "scissors telescope" in use in the German field artillery.—(General Staff.)

Sometimes artillery came into action without either wagons or limbers being left in the firing battery, in such cases 4 or 5 baskets, each containing 4 rounds, were placed alongside each gun.

The country in which the manœuvres were held was ill-suited for artillery. It was difficult to find positions for the number of guns available. Batteries were usually employed singly and not in brigades.

Each battery carried 2 kilometres (2,187 yards) of telephone wire, each artillery divisional and regimental commander having the same amount.

No regular method was employed for maintaining touch between attacking infantry and the artillery supporting them; the artillery telephones were not used for this purpose.

The artillery indicated the nature of the target fired on by coloured screens, viz.:—Red for infantry, white for artillery, yellow for cavalry. Batteries were also experimenting with a mirror which they flashed at the troops at which they were firing.

The artillery has evidently a great idea of its own powers. As an instance, one morning there was a thick fog which only admitted of a view for about 200 yards. Some troops of the Red force crossed the Fax Elf on a raft and took up a position to cover the crossing of the remainder of their regiment, also by means of rafts. The crossing was judged to be impossible owing to the fire of a Blue battery about 1,600 yards distant. This battery had an observer near the crossing point, connected with the guns by a telephone, the direction being obtained by laying on a compass bearing. This would have been difficult in practice, the R.F. of the only maps available being 1 to 100,000.

The artillery draught horses were all hired. They did not move out of a walk, but appeared to be as mobile as was necessary for field artillery in such country. They were small but wiry and looked in good condition. The riding horses belonged to the permanent establishment of batteries.

Machine-Gun Batteries.—These were formed from the Position Artillery Regiment. They consisted of six gun-wagons and six ammunition-wagons, each drawn by a pair of horses. The gun is a Hotchkiss mounted on a tripod and fires the same ammunition as the Mauser rifle. When travelling the gun and its tripod lie on the top of a wagon; when going into action they are carried by two men of the detachment.

Although organized as a battery, the machine guns were not as a rule used as such, but were detached singly or in pairs to any units or localities where they could be of use. Occasionally the six guns were brought into action in one line, but there did not appear much object in doing this, as each gun fired independently, and there was no system of fire control. The

machine guns would have been more effective and less vulnerable had they been more dispersed.

The above organization for the machine-guns was experimental and did not appear entirely to meet with the approval of the Swedish General Staff.

Telegraphs and Telephones.—No wireless telegraph was in use, nor was there signalling either with flags or heliograph, but much use was made by the engineer telegraph company of field telephones and telegraphs. The engineers used not only their own wires but those of the district, as long as it was judged by the umpires that the latter were unbroken, or that time had elapsed during which they might be repaired.

Cyclists.—Messages were usually carried by cyclists or mounted orderlies, and for this purpose 8 cyclists and 8 mounted orderlies were attached to each regiment of infantry. Cyclists were not used for other purposes than as orderlies. There were no motor cycles, and motor cars were only used by the directing staff.

Balloons.—There was a captive balloon with the Blue side; it was chiefly for the use of the directing staff.

Clothing.—The troops are gradually taking the new blue-grey clothing into wear, and many of them had either coats or trousers of this colour. In the last report on Swedish manœuvres this colour is spoken of as being well adapted to the country on account of its similarity to the granite rocks. This year it was not a great success, as it is more visible than the old uniform against a background of dark trees.

Transport.—There was a great variety of transport wagons, all of which were of a very light nature and were drawn by either 1 or 2 small horses.

An experimental meat wagon was seen in use. One such wagon belongs to each battalion and forms part of the 1st line transport. It carries the next day's supply of meat for the battalion, 4 company cooking pots, 4 mincing machines and implements for cutting up the meat. The inside of the wagon is lined with tin or galvanized iron, the back lets down and forms a table, and the top of the wagon has a steel framework with meat hooks. This pulls out so that the meat hangs over the table and clear of the wagon.

A small-arm ammunition wagon containing 17,920 rounds was also seen. There was one such wagon for each battalion with the 1st line transport.

An experimental form of transport was employed on some occasions, when manœuvring in the forest, by taking horses out of transport wagons and utilizing them temporarily as pack horses. The packs were carried in rope nets, which were slung over the saddles and loaded with such blankets, provisions or ammunition as the troops were likely to require.

The transport wagons, even those of military pattern, were to a large extent driven by civilian drivers.

Medical.—There was an experimental motor ambulance in use. It was of 16 horse-power, and fitted with four stretchers, two above and two below. These stretchers had wheels at one end which fitted on to rails in the wagon and enabled them to be easily run in and out.

Casualties.—Casualties were practised only in the case of groups of men; these groups were temporarily put out of action, and the fact was indicated by sticking a screen into the ground in front of them.

Range-finders were not used either by the artillery or infantry.

Bridging.—The bridging done by the engineers appeared to be excellent. It was stated that they took two hours to bridge the Angerman Elf where it was 120 yards wide, 30 feet deep in the centre, with a current of $4\frac{1}{2}$ miles an hour. This bridge was made passable for vehicles. They also constructed a smaller bridge about 3 feet wide, partly of pontoons and partly of local boats and timber, over the Fax Elf where it was about 75 yards wide. This bridge was sufficiently stable for horses to be led across.

Tents.—Troops were never billeted, but when allowed to rest they did so in great comfort, thanks to the Piedmont pattern tents, of which every man carried a section. These tents, which have been described in former reports on Swedish manœuvres, usually accommodate 4 men. During these manœuvres the men preferred, probably on account of the cold, to make them into larger tents suitable for 24 to 30 men. The top of the tent was open, and a wire cage in which a wood fire was kept burning all night was hung about 3 feet off the ground by chains from the top of the poles. It appeared doubtful if these tents would be sufficiently stable for use in a windy country.

As in former years, no alcohol was allowed either to officers or men. This rule was observed by the King and by the Directing Staff, as well as by the troops engaged.

TURKEY.

The manœuvres of the II. Ordu* took place in the neighbourhood of Adrianople on the 1st, 2nd and 3rd of November, the troops engaged consisting of two composite divisions.

STRENGTH AND COMPOSITION OF THE OPPOSING FORCES.

Western (or Khaki) Force.

Commander—Liwa (Major-General) Shevket Torgout Pasha.

This force consisted of—

- 12 battalions,
- 6 squadrons,
- 6 four-gun Q.F. field batteries,
- 2 machine-gun companies,
- 1 company engineers (bridging),
- 1 sanitary company,
- 1 telegraph detachment,

organized in two infantry brigades and one cavalry brigade.

With these co-operated a detachment consisting of two battalions (marked), one squadron (effective), and one battery marked by two guns.

Eastern (or Blue Force.)

Commander—Liwa (Major-General) Hakki Pasha.

This force consisted of—

- 12 battalions,
- 5 squadrons (3 effective and 2 marked),
- 9 four-gun Q.F. field batteries,
- 3 machine-gun companies,
- 1 company engineers,
- 1 sanitary company,
- 1 telegraph detachment,

organized in two infantry brigades, with a composite cavalry regiment consisting of 2 squadrons (effective), 2 squadrons (marked) and a squadron of cadets from the military school at Pancaldi.

The approximate strength of the whole force (both sides) was 12,500 men, the Western force being actually the stronger of the two by some 500 men.

The strength of battalions averaged 360 men—squadrons perhaps 60, and artillery 75 per battery.

* Army District.—(General Staff.)

COUNTRY.

The theatre of operations, which embraced both banks of the Tundja, some 25 kilometres north-east of Adrianople, is absolutely unenclosed, with gentle undulations, affording opportunities for skilful troop leading. All arms could move freely except where obstructed by the waters of the Tundja.

The soil is loam with sand, and the direction of the valleys north to south, the general dip of the country trending somewhat towards the west.

NATURE OF THE OPERATIONS.

The general situation stated that the frontier between the hostile powers was that actually existing between Turkey and Bulgaria, and that on the morning of October 31st the principal Western force had crossed the frontier to the south of the Maritza, driving weak detachments of the enemy across the line Chermen and Karabagh.

The main body of the Eastern Army had not finished concentration at Demotika.

The Fortress of Adrianople was supposed to be unarmed on the east and north-east.

The task of the Western force was to cross the Tundja, disturb the concentration of the Eastern force, and cut the communications between Adrianople and the east. To this end it was concentrated at Skudere (Iskudar) with cavalry at Vozgach, expecting to co-operate with a detachment moving southwards from Biyuk Boyalik.

The intention of the actual fighting division of the eastern force, which on the morning of November 1st was concentrated at Karadeli, with cavalry at Gechkenlia, was to protect the north-eastern front of the Fortress of Adrianople and if possible prevent the north-western front being masked, while keeping open the communications with Constantinople and Rodosto.

METHOD OF CONDUCTING THE MANŒUVRES.

The original scheme for these manœuvres had been devised by Marshal Abdullah Pasha, commander of the II. Ordu, and embraced operations between the garrisons of Adrianople and Kirk Kilisse, involving the capture of the latter fortress; Von d. Goltz Pasha, however, completely altered the scheme to one which, owing to the nature of the country, would give greater experience to the troops, and which possessed the additional advantage of practically familiarizing officers and men with operations which may some day have to be re-enacted in actual war.

The operations were conducted by Von der Goltz Pasha, with Pertev Bey as his Chief Staff Officer.

Mahmoud Shevket, Abdullah and Nazim Pashas also assisted.

The opposing generals were nominally given a free hand, except as regarded the hour at which manoeuvres might commence on each day, but it became evident that the movements were to a large extent pre-arranged, owing possibly to a mistrust of the efficiency of the supply arrangements.

A conference was only held at the conclusion of the manoeuvres, and to this the military attachés were not invited.

Umpires.—An Umpire Staff was detailed, but was generally conspicuous by its absence.

The general good sense, however, of the regimental officers served to minimise impossible situations.

Distinguishing Marks.—The military attachés wore white bands on the left arm with a red number thereon, a corresponding band and number being worn by each cavalry orderly attached to a military attaché. There was thus no difficulty about finding horses.

Marked Enemy.—Flags represented companies, batteries and squadrons. Red, yellow and white in the three cases respectively.

Maps.—Appeared to be little used, but this was explained by the statement that the country was so thoroughly well known. Notwithstanding this explanation, it is doubtful whether in the Turkish Army the science of map reading has yet emerged from a state of infancy.

REMARKS.

Staff.—Arrangements, generally speaking, were good. Orders were issued early and were concisely and cleverly framed. No confusion was anywhere noticeable.

Infantry.—The appearance and performances of this arm were highly creditable considering that nearly 60 per cent. of the men in the ranks had less than 6 months' service.

Immense pains have been taken by the officers, and the result can be considered as eminently satisfactory.

Deployments were fairly quickly carried out and in silence, but the supporting lines were often far too close together and the rushes too short. There was a marked tendency towards over-extension, which Von der Goltz Pasha suggested was due to the large printing of names on small scale maps, this causing officers inexperienced in map reading to misjudge distances.

The general discipline seemed extraordinarily good, and the fire discipline also called for praise. Volley firing was not employed.

Thirty rounds were allowed to each man for the three days' manoeuvre period.

Cavalry.—Little was seen of this arm.

The squadron of cadets from Pancaldi accomplished the march from Constantinople to Adrianople in five days and, after resting half a day, took the field and did well. One squadron dismounted and repelled a cavalry attack.

Artillery.—This was well horsed, and the harness was practically new. The driving, if not good, was intrepid, and guns were quickly brought into action.

Guns were not entrenched, few shovels being carried.

Mistakes as regards position and changes of position were noticeable but these were readily recognized and commented upon.

Danger angles were ignored. Indirect laying was largely employed. Ammunition supply was not practised. The placing of teams and limbers was good and out of line of hostile fire.

Thirty rounds per gun were allowed for the three days' manœuvres.

The Three Arms combined.—This was the weak point. Mutual support between the three arms was scarcely ever to be remarked, although artillery was once seen to gallop up into the firing line within some 600 yards of the hostile infantry when it could have been of equal service in its original position.

The cavalry took little or no part in the various actions.

Engineers.—These seemed extraordinarily efficient. A bridge 55 metres (60 yards) long was thrown over the Tundja in one hour and 40 minutes (mixed trestle and pontoon) and 25 kilometres (15½ miles) of air line were completed in 5 hours by the telegraph section.

Medical Services.—There was little or no sickness, and provision was only made for 25 sick on either side. Latrines were dug and camps were left fairly clean.

No attention is paid to purity of drinking water.

Automobiles.—Three armoured Hotchkiss automobiles were available for conveying the Directing Staff and the Military Attachés to and from the manœuvre area.

Supply and Transport.—Depôts of forage, meat, rice, oil &c. were established for both forces at convenient centres.

Each man carried biscuit and bread for two days in a haversack.

No requisitions were made for civilian transport, all wagons being supplied by the transport battalion.

Each division had 40 heavy wagons and 30 smaller carts.

With each battalion were 12 pack horses.

Each battalion in time of peace has 1 wagon, to these were added 3 more wagons and 8 carts.

Machine-Gun Companies.—As stated, five of these were present fully equipped and made a favourable impression.

The officers are selected.

Signallers.—Flag signalling is making slow progress, although the *nishanji* (rifle) battalions do fairly good work with large and heavy flags.

Range-finding.—This was not observed, though a few men in each battalion are said to have received some training.

Uniform.—The Eastern force was in blue with red fezzes and the Western in khaki with khaki fezzes. It is probable that the khaki fez will be generally adopted.

Steel scabbards were swathed in khaki.

Bivouacs and Billets.—Troops slept in the villages whenever available; otherwise they bivouacked, straw being issued to them. No system of billeting was observed.

The principal impression left upon the mind by the manœuvres was that at last the Turks had really commenced to possess efficient troops in the modern sense of the term, and that, given an unbroken period of rest from internal disorders, they may hope to have in the course of three years an army fit to undertake offensive, as well as defensive, operations.

UNITED STATES.

Manœuvres took place in the vicinity of Boston, Massachusetts, between the 14th and 21st August, the greater part of the troops engaged being drawn from the National Guard or Organised Militia.

STRENGTH AND COMPOSITION OF THE OPPOSING FORCES.

Red Force.

Commander:—Brigadier-General Tasker H. Bliss.*

This force was organised as one division of an army corps and comprised:—

- 3 infantry brigades,
- 3 squadrons of cavalry,
- 3 batteries of artillery,
- 1 battalion of engineers,

And detachments of the signal and medical Corps.

Blue Force.

Commander:—Brigadier-General W. A. Pew, National Guard, Mass.

This force was also organised as one division of an army corps and comprised:—

- 2 infantry brigades,
- 1 squadron and 1 troop of cavalry,
- 1 battalion (3 batteries) of artillery,
- 12 companies of coast artillery,
- 2 battalions of cadets,
- 1 section of an ammunition column,
- 1 divisional hospital,

And detachments of the signal corps.

The Red force numbered about 6,500 of all ranks, with 1,095 horses and 20 guns, and the Blue force about 5,500† of all ranks.

COUNTRY.

The manœuvre area was the south-eastern part of the State of Massachusetts, viz.:—that area lying south of an east and west line drawn through the town of Quincy, and east of a north and south line through Fall River.

* President of the War College at Washington.

† The number of horses and guns with this force is not known.

This portion of the State is sparsely inhabited and, for the most part, uncultivated, the soil being poor and rocky. The country is generally flat and wooded. Movements of troops must almost everywhere be confined to the roads. Woods, where passable, are passable by infantry only.

There are numerous small lakes and swamps, which form impassable obstacles to troops and which, in a large measure, determine the route followed by the roads.

The roads are numerous, but, with the exception of the "state roads," are practically all unmetalled and become badly cut up in wet weather; the soil is, however, light and dries quickly after rain.

The streams are all small and with few exceptions easily fordable.

Good drinking water can be obtained from the lakes and streams.

The district is well served by railways, all of which are single lines, and, in addition, there are a number of electric trolley lines running along the roads.

There are telegraphs along all the railway lines and telephone communication is much developed.

In this district, stone walls replace the "snake" fences usually found in well timbered parts of rural America.

NATURE OF THE OPERATIONS.

The general scheme of the manœuvres was the defence of the city of Boston against a hostile force landed from transports at some point on the Massachusetts coast to the south of that place. A fleet was to co-operate with the land force by attacking the sea defences of Boston.* The attack was deemed to be so sudden that there had been insufficient time to mobilize troops from other parts of the country, and only the National Guard of the State of Massachusetts was available to oppose the attack.

The Red, or invading force, was conveyed in transports from various ports, and a landing was effected unopposed at New Bedford, Mass., on the 14th August. On the same day the Blue force moved out from Boston by train and bivouacked on a line from Paper Mill Village to Halifax, covering the roads leading on Boston from the south. The distance therefore separating the two forces on the night of the 14th-15th August was about 20 miles.

* No part of the United States Navy was available to co-operate and consequently certain transports and mine planters were organised as a fleet of warships. Two companies of coast artillery were embarked on these vessels and the intention was that they should attack Boston from the sea. Owing, however, to unfavourable weather these operations appear to have been entirely abandoned.

The plan of the commander of the Red force was to turn the left flank of the Blue Army, which was in a somewhat extended position, and eventually to place his force between it and Boston. He advanced, therefore, in this direction with his troops in a concentrated formation and succeeded during the days of the 16th and 17th of August in driving in the few Blue troops who opposed him.

On the afternoon of the 17th August the Blue Commander, having realised his opponent's plan, made strenuous efforts to concentrate his force on his left flank. Being unable, however, in the time available to place it across the Red line of advance on Boston, he correctly appreciated the situation and, without delay, decided to attack the left flank of the advancing Red Army. The result was that severe fighting took place on the days of the 16th and 18th August in the neighbourhood of Bryantaille and Hanover Four Corners. At the end of the operations on the latter day the Director of Manœuvres considered that the Blue commander must fail in his attempt to prevent the Red force from reaching Boston. The manœuvres were, consequently, brought to a close.

METHOD OF CONDUCTING THE MANŒUVRES.

Umpiring.—The Chief Umpire interfered in no way with the initiative of the opposing commanders, and no attempt was made to create particular tactical situations.

Supply.—Each force managed its own supply. Throughout the operations, the Red force drew its supplies from New Bedford, using its own transport. The Red force was not permitted to make use of the railways. The Blue force on the other hand was permitted to use the railways in its rear.

Use of Telegraphs.—Both forces were forbidden to use the existing telegraph and telephone lines and were obliged to depend entirely on the field lines put up by the detachments of the Signal Corps which accompanied them.

Duration of Operations.—Operations commenced each day at 5 a.m. and terminated at 1 p.m., as it was considered that, in view of the rawness of the troops and the novelty of taking the National Guard out for manœuvres, it would be unwise to try the men too highly. No flank or forward movement was permitted outside these hours.

Camping Grounds.—No definite camping grounds were laid down, and troops were allowed to bivouac anywhere, subject to the restriction that orchards, parks and fields under cultivation were not to be used without the owners' consent.

Conferences.—No discussions took place at the termination of the day's work, although they were contemplated in the

manœuvre instructions; they were apparently given up because it was found impracticable to get the officers together, and also because it was thought that candid criticism of the militia officers in public would not be politic.

REMARKS.*

Staff.—The staff on neither side appeared to be well organised, there appeared to be no clear division of duties and consequently a good deal of confusion. In the case of the Blue staff this was to be expected, as it was composed of militia officers without experience or training. The officers composing the Red staff were partly students from the War College accustomed to working together, but were also without practical experience.

Infantry.—The Red infantry carried kits weighing about 40 lbs. inclusive of rifle and bayonet. The men had had no previous training, and the majority were wearing boots which were quite unsuitable for marching. The average length of the marches was about 12 miles. The march discipline was good, the units kept well closed up, very few stragglers were to be seen, and no men were noticed riding on transport vehicles, though a few were to be seen marching barefoot carrying their boots.

The Blue infantry carried little besides their arms, so that their marching was no test of their mobility under service conditions.

Owing to the close nature of the country, it was seldom practicable to deploy more than a battalion in one line, and for the same reason the attacks made were usually piecemeal affairs. The firing lines held the edges of the woods and seemed to be right in doing so, for, in a country where artillery if it comes into action at all must do so within close rifle range, there is little danger to infantry holding a line which offers a good artillery target.

The fire discipline was poor. The officers did not point out targets, give ranges or control the rate of fire of their men. It must be borne in mind, however, that most of the fighting was at point blank ranges.

The men had a good idea of making use of cover and only exposed themselves at the moment of firing.

No entrenching appears to have been done, nor was a case heard of where a unit had claimed to have entrenched itself.

Cavalry.—The number of cavalry engaged was so small that there was no opportunity of seeing whether they were

* In reading these remarks it must be remembered not only that the manœuvre area was a difficult one for the carrying out of combined operations, but also that practically all of the troops engaged belonged to the National Guard or Organised Militia.

able to manœuvre in mass or ~~unit~~. When halted the men seemed inclined to remain in the saddle instead of dismounting to ease their horses.

As far as reconnaissance was concerned, the cavalry on both sides was badly handled. It was difficult country for them to work in, because they were in most parts confined to the roads. They showed, however, little enterprise in trying to push in the enemy's outposts and find out what there was behind them.

Artillery.—The artillery *personnel*, though knowing their drill, appeared to have very little idea of artillery tactics. Guns were brought into action in the open within 800 yards of infantry in position, and no attempt was made to get the teams under cover.

Indirect fire was not used, but this was hardly to be expected as all the batteries were militia units.

Though organized in battalions of three batteries, the artillery was not apparently utilised in this manner, but rather by single batteries. This held good both in action and on the line of march.

There was no hesitation about bringing guns close up behind the firing line, and the regular officers did not criticise this action adversely.

Camping Arrangements.—The camping arrangements were left to the Brigadiers, as the whole force was never bivouacked together. The site was selected by an officer detailed by the Brigadier. The troops settled down into bivouac quickly, and there was no sign of confusion and delay.

Telegraphs.—Both sides had detachments of the Signal Corps (National Guard). These detachments were engaged in establishing telegraphic communication between the divisional headquarters and the headquarters of the different brigades, and, in the case of the Red force, between the base at New Bedford and the divisional headquarters.

The telegraph equipment was crude but serviceable. No poles were carried and at road crossings the wire was either buried or suspended from trees.

Telephones.—No telephones of any description were seen and there was no wireless equipment of any kind with either force.

Visual Signalling.—No visual signalling appeared to be used by any unit.

Motor Transport.—Motor transport was used between the Red base at New Bedford and the division. The vehicles were petrol lorries of an experimental pattern. There were two classes, viz.:—a light vehicle carrying 3,000 lbs. and a heavy vehicle carrying 6,000 lbs.

• **Cyclists.**—The Red Army, being very short of cavalry, endeavoured to make up for its deficiency in mounted troops by employing cyclists for scouting work. These were organised in squads of 6 or 8 ordinary cyclists and 2 motor cyclists. The latter were stationed at some central point of the zone in which the ordinary cyclists were working. The cyclist scouts took back to the motor cyclists any information they had obtained, and these latter were responsible for getting this information to headquarters, taking it either to the nearest telegraph office or direct into the headquarter camp. The system as a whole failed because the screen of cyclist scouts was too thin to penetrate the enemy's cavalry patrols, and the scouts were too inclined to stick to the roads.

Compensation for Damages.—The compensation officers carried a considerable amount of cash with them and were authorised to settle at once for cash any claim for damages. After the amount to be paid had been agreed upon, the claimant signed a form of release and the money was paid to him. This system of immediate settling worked well, and the total damage bill for the manœuvres only amounted to 1,500 dollars (300l.).

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